Volume 73 No 3
March 2005

Amateur Radio

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The magazine for AUSTRALIAN radio amateurs

This DXpedition's dramatic ending

Multiband magnetic loop: 160 – 15 metres from your coffee table
Peter Parker VK3YE

VK5BR X3 antenna for 40 metres
Lloyd Butler VK5BR

FT920 antenna tuner repair
Barry White VK2AAB

Another method of making "air-wound" transmitting coils
Drew Diamond VK3XU

Those bargain portable generators
Steve VK5AIM

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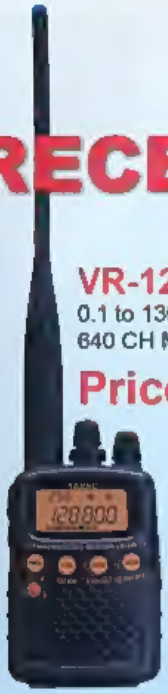

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GENERAL

TECHNICAL

COLUMNS

Our Cover this month

Mrs. D. Bharathi Prasad VU2RBI, leader of an amateur radio DXpedition team which suddenly found itself providing emergency communications in Andaman and Nicobar Islands during the recent earthquake/tsunami disaster. See full story page 13.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the National Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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The Australian Amateur Radio Service

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Editorial comment

Colwyn Low VK5UE

Things that go astray...

...and other gremlin activity

Greetings to members and readers welcome to March AR. Christmas and the New Year seem a long time ago and Easter is upon us.

The John Moyle Field Day takes place on the weekend of March 19th – 20th. Some of us have been planning what we will do this year to improve on last year. Do we need to go to a different location or just improve the equipment? Some of us will be in confusion because as we read this the FD is less than two weeks away. Some of us will be saying "another #$@#$ contest". However the FD is a great chance to sort out gear to work off portable power, be it batteries or generators so that if we are needed for an emergency we are at least able to list what we need and dig it out of the shack and shed. I had put off buying a generator until last year as I would have found it hard to justify $800 plus from the household budget but when an 850 watt generator became available last year for $185 I went out and bought one. There is a write up on these inexpensive generators in this issue.

While on contests we need to remember if WIA runs them and people participate, then there is a need to publish the results. Now all our Contest managers are volunteers and unfortunately processing the results at times cannot be top priority. As I understand it every log is cross checked against all other logs submitted which it had contacts with. This is a very time consuming activity. My own feeling is that if we check 10 % of each log and check 10% of the logs 100% then this should be enough. When the results have been processed they are send to the WIA Contest Coordinator and AR. They should then appear in one of the next two issues of AR. Unfortunately things go astray and in this issue you will at long last find the results of the 2003 RD contest. This is no fault of the Contest Manager but unfortunately the Editor at this stage can find no trace of the correspondence regarding receipt of the 2003 RD results. So with my sincere apologies for the LONG delay the results of the 2003 RD are in this issue.

Other activities DXCC. The DXCC standings were published last month and if you could not work out what was what, you had good reason. The column headings got moved around in their conversion from an XL spreadsheet, where they looked great, to our InDesign software used to set up the print pages. So to help you out, at the bottom of page 6 we have reprinted the heading, column headings and the first few lines of the table. You can then copy or cut this out and paste it at the top of page 43 in the Jan/Feb issue. Sorry for the inconvenience.

We have made one change in presentation this issue. News from State Advisory Committees and clubs is collected together by states under the heading "News from".

Regards Colwyn VK5UE

March events

John Moyle Field Day Contest 2005
19 – 20 March, 2005
Details on page 52 of Jan/Feb AR

Urunga Radio Convention
26 & 27 March
Details on page 41 of Jan/Feb AR

Michael Owen VK3KI

The WIA Annual General Meeting

An insert in this issue of AR is the formal Notice of the Annual General Meeting to be held on 7 May 2005 in Canberra, together with the Annual Accounts, Auditors' Report and Directors' Report.

The 2005 AGM marks yet another stage in the transformation of the WIA from a federal body to a single national body.

The AGM will review the last financial year of the WIA, the year ending 31 December 2004, as the WIA's financial year is a calendar year. Of course, the new Constitution was only in place for about half of that year, and so the financial results may not really reflect the results we would expect in a full year.

In the past the Annual General Meeting of the WIA has been called the Federal Convention, with the 7 members of the WIA, the Divisions, represented by their Federal Councillors, and usually one or two others from the Division. Now, every member is entitled to participate.

But how are we going to run the AGM?

Your Board has given this a lot of thought, and has been helped by the enthusiasm of the Canberra Region Amateur Radio Club, formerly the VK1 Division, to conduct the AGM in the national capital, and to make it attractive for as many members as possible to attend.

This year, as it is still the first year since adoption of the new Constitution, there is no election of directors, as all the Directors appointed by the Constitution were appointed for an initial term of either two or three years. Next year, three directors will retire, and while they may offer themselves for re-election, there may well be other candidates.

Accordingly, the only business of the AGM is likely to be formal.

But the Board considers it very important to provide members with as much opportunity as possible to raise whatever matters they wish, and to have the opportunity to comment on as many aspects of the WIA's activities as possible.

That is why we are conducting what we are calling an Open Forum. Let me repeat what appears about the Open Forum from the Notice of Annual General Meeting, hopefully with the insert to this issue.

Immediately following the closure of the formal Annual General Meeting an Open Forum will be conducted. Detailed reports will be submitted on behalf of the Board, the Institute's Coordinators and those responsible for particular aspects of the Institute's activities. Their written reports will be available for those attending the Forum, and each, either directly or by a representative, will be asked to briefly present their report in just a couple of minutes, identifying any major issues affecting their area of responsibility.

Members are encouraged to discuss any matter arising from any of the reports, and to raise any matter affecting amateur radio or the Institute.

The Board hopes that this format will provide the opportunity for as many members as possible to express their views on as many of the different activities of the WIA as possible.

And that is the point.

The WIA coordinates or is otherwise involved in many activities, from awards and contests, to satellites, to the new Foundation Licence syllabus, to the risk of BPL, the conduct of examinations under the current procedures and the search for a better means of assessing candidates, the publication of this magazine and the call book, indeed almost all aspects of amateur radio.

And quite different matters are very important to different people.

Many aspects of the WIA's new structure are still evolving, such as the role and responsibilities of the Advisory Committees, as is, in fact, how best to conduct the Annual General Meeting.

And, in the end, the WIA is a voluntary organisation, and most of what it does depends on the time and skills of the many people who take on the many tasks that together make up our WIA.

And that at times also means identifying priorities.

That is why we want just as many amateurs as possible to be there. Please tell us what we are doing that is right, as well as what you think can be done better or should be done differently.

Alan Hawes, VK1WX, and the Canberra Region Amateur Radio Club have accepted the challenge of helping make the weekend attractive.

They have arranged our Annual Dinner for Saturday night, after the AGM and a visit on Sunday morning to the Canberra Deep Space Communications Complex at Tidbinbilla.

So, please see if you can participate in this first opportunity for all members to participate in our first really national function. Please review the formal documents for the AGM, and the information about the weekend in Canberra.

I hope that as many members as possible will come to Canberra to contribute their opinions and judgements in what we hope will be a constructive and enjoyable environment.

And I hope that we will be able to make the weekend worthwhile, both in the opportunity to contribute formally and informally, particularly in the Open Forum and to visit the national Capital with other amateurs.

ar

WIA news

Ewan McLeod, VK4ERM, appointed WIA Vice President

Last November WIA Director and Vice President, Ernie Hocking, VK1LK, advised the WIA board of his resignation as a director of the WIA and therefore as Vice President.

The WIA Constitution provides that if the position of Vice President becomes vacant the Board shall appoint another director as Vice President for the balance of the previous Vice President's term.

The Board has appointed Ewan McLeod, VK4ERM, as Vice President of the WIA.

Ewan is presently a Director of the WIA, Chairman of the Queensland Advisory Committee and Queensland Region WICEN Coordinator. Ewan has indicated to the Board that he will resign from the Queensland Advisory Committee.

IARU Region 3 appoints new officials

Peter Lake, ZL2AZ, has been appointed a Director of IARU Region 3 to fill the vacancy created by the death of the Chairman of Directors, Peter Naish, VK2BPN.

ZL2AZ assumed office on February 2, 2005. On February 4, 2005 following the election of ZL2AZ, the Directors unanimously appointed Director Young-Soon Park, HL1IFM, as Chairman of Directors, IARU Region 3.

President visits Alice and Darwin

WIA President, Michael Owen, VK3KI, will be visiting Alice Springs in early March.

The Alice Springs ARC has organised a meeting for 7 pm on Friday 4 March at the Elkira Motel.

On Sunday Michael will be travelling to Darwin, in response to an invitation from the Darwin Amateur Radio Club.

The Club will be hosting a BBQ commencing at 6:30 pm at Sports House, Fanny Bay on Monday evening, 7 March, followed by a slightly more formal meeting commencing between 7:30 and 8 pm.

Michael will remain in Darwin for a couple of days, taking the opportunity to meet with the Public Trustee to finalise some matters relating to the generous bequest to the WIA in the will of the late Henry Andersson, VK8HA.

Michael hopes to meet as many Darwin amateurs as possible during this visit, as he seeks to identify how the WIA can better serve clubs as remote as Darwin and Alice Springs.

Successful NSW Central Coast Field Day

The VK2 annual Central Coast Field Day was held on Sunday, February 20 2005 and was very well attended.

The WIA set up a stand on the first floor in the coffee lounge area with most of the WIA directors in attendance. It seemed from the hectic pace that most of those attending the field day dropped in for a chat, to ask questions, to make suggestions or to join the WIA.

The stand featured several items which will be sold by the soon-to-be established WIA store. The items on display included WIA caps, polo neck shirts, summer wind jackets and a carry bag.

Twenty eight people took the opportunity to join the WIA.

This, along with the 9 other members who joined during the same week, added 37 new members, which was around a 1% increase in WIA membership for the week.

WIA director interviewed on Melbourne radio station

On Monday evening, January 24 2005, WIA director Robert Broomhead, VK3KRB was interviewed on radio station 3WBC on 94.1 FM on the subject of BPL.

This follows the very successful interview by WIA director Phil Wait, VK2DKN, on radio 3MDR's popular TekTime show a week earlier.

Industry Canada reports "overwhelming agreement" to drop Morse requirement

In January Radio Amateurs of Canada (RAC) reported that an Industry Canada analysis has found "overwhelming agreement" that Canada should move away from retaining a Morse code requirement as "the sole means of gaining access" to the HF amateur bands.

NZART and WIA join forces on the BPL issue

In an effort to make the most effective use of resources and because the BPL issues in both Australia and New Zealand are similar, the NZART and the WIA will work as a team in an effort to achieve a positive outcome on this issue for Amateur Radio. The NZART have produced a very informative web page with many links to the WIA website and many other related sites.

The WIA has added a link to the new NZART WebPages via the BPL menu and to the very extensive and informative ARRL BPL pages.

The European Commission EMC Directive

The European Commission has released a new EMC Directive, which contains some positive news for European Amateurs in their fight against interference from BPL/PLC.

The Directive is the result of a review and restatement of an earlier Directive (89/336) that states the general principle that radiocommunications services are to be protected from emissions from electrical equipment and networks.

For the first time the Amateur Radio Service is specifically mentioned as a service, which requires protection against "intolerable" interference. Unfortunately, the Directive does not establish "the level" (or levels) considered "intolerable".

ARRL Tells FCC to "Reconsider, Rescind and Restudy" BPL Order

The ARRL has petitioned the FCC to take its broadband over power line (BPL) Report and Order (R&O) back to the drawing board. In a Petition

continued on page 8

VK5BR_X3 antenna for 40 metres

by Lloyd Butler VK5BR

Here is some more on the X3 antenna.

This model has a base band of 40 metres but it can also be operated with less efficiency on 80 metres

The article is a follow up to the previous article for the VK5BR_X antenna published in November 2004 Amateur Radio. The previous article discussed background theory of the X antenna and a model of the X3 version made for the 20 metre band. The article also discussed how the 20 metre model could be tuned up on the secondary band of 40 metres. The following article describes a version of the X3 for the primary band of 40 metres with the potential for operation on a secondary band of 80 metres.

The 40 metre antenna is similar in operation and wiring connection to the 20 metre version, again using resonant open wire line to feed it and a Z Match Tuner to adjust the antenna system matching from within the Radio Shack.

Assembly

The assembly for the 40 metre version is shown in figures 1, 2, & 3. The new antenna has made use of square galvanised pipe sections for the E Field plates rather than cylinders as used in the 20 metre unit. This was done to simplify the assembly holding the E plates apart and mounting the H field generating coils. As can be seen from the diagram, there are two simple rectangular plates made from some form of insulating material. I used some tempered hardboard which I had on hand. The coil connection as included in the previous article, is repeated in figure 4.

Using the coils shown, resonance with the E plate capacitance occurs just below the 7 MHz band at 6.5 MHz. Of course exact resonance is not important as this is corrected by reactance fed from the Z Match adjustment. The reflected resistance component at 7 MHz measured around 40 ohms.

I was very impressed with performance on the air on 7 MHz. Of all the Crossed Field or EH antennas I have constructed and tested, this one on this band has worked the best. Reports from various amateur stations around Australia were on the lines that there was little difference between the X3 antenna and my reference half wave inverted V antenna. For all tests, the X3 antenna was hung in the vertical position about 2 metres above the ground.

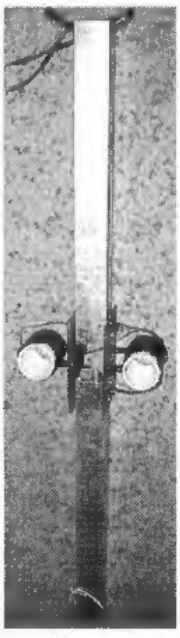

Figure 2

The next question was whether the 40 metre X3 would work on the next band down as the 20 metre version had done. On 80 metres, the antenna presents quite a high inductive reactance in series with its load and I found it difficult to get a Z Match unit to work directly into that reactive load.

However the antenna can be made to match on 80 metres by adding a series

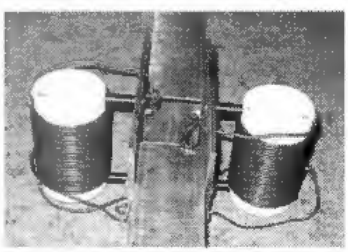

Figure 3

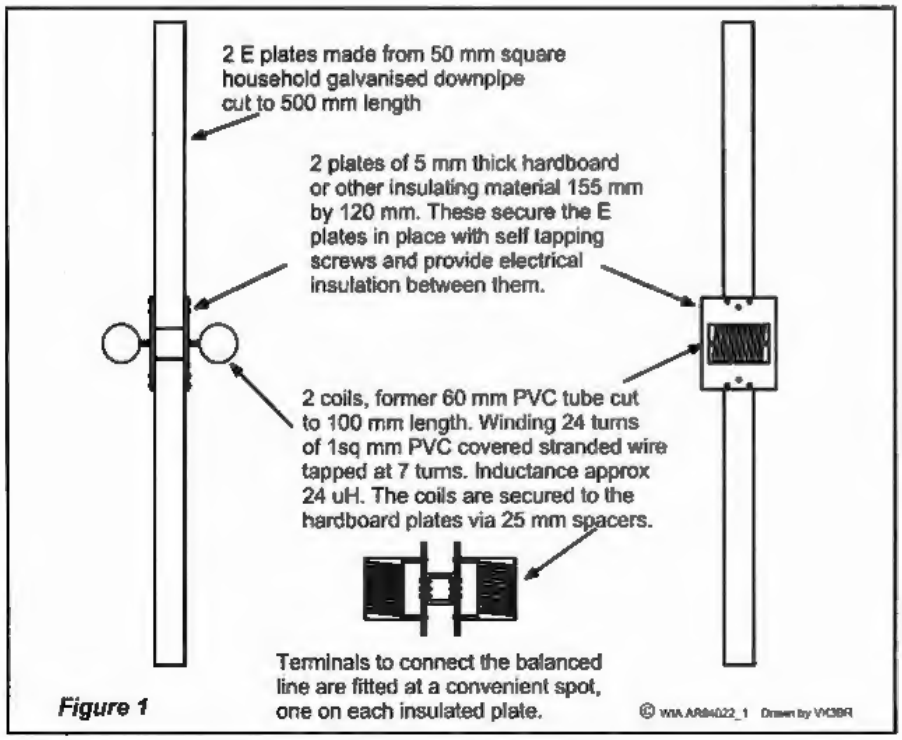

Figure 1

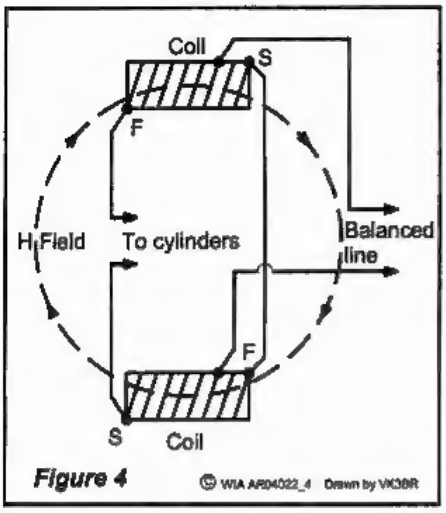

Figure 4 © WIA AR04022_4 Drawn by VK3BR

phase correcting capacitor in series with each leg of the balanced line feeding the antenna. The exact capacitance value of the capacitors is not critical and values around 200 to 400 pf do the job. The Z Match unit will then work and a healthy field is then generated around the antenna. Adding these capacitors has little effect on the operation on 40 metres and hence they can be left in place for both 40 and 80 metre bands. When the series capacitors are to be used, they need to have high RF current rating. That means they must have low series loss resistance to prevent power loss and overheating in the capacitors .

Some general notes

In reviewing test results and making some further measurements, both the 20 metre and the 40 metre versions of the X3 antenna have shown similar characteristics even though they are constructed a little differently.

The resistive component reflected at the antenna input at the base frequency band is around 40 to 60 ohms. This drops considerably when operating on the half frequency band to around 15 ohms. There is possibly a case for moving the coil taps up a bit further but I haven't tried this.

Radiation efficiency is clearly much better on the base band than at half frequency. Series phase correction capacitors in each balanced line leg are desirable to correct for inductive reactance when operating on the half frequency band. These can be left in for the base band without making much difference to the operation on this band. Suggested values are 220 pf for the 20 metre antenna and 330 pf for the 40 metre antenna.

A considerable degree of loss can occur in the Z Match Tuner depending on the length of line and what actual impedance components are reflected back to the Z Match. So because of losses here, overall efficiency can be quite variable. It is also possible to get a wrong match where the SWR meter facing the transmitter indicates a match but the tuner circuit is actually matched to an unbalanced form of load it has found. I find that it pays to check with a fluoro lamp for a balanced field around the two dipole plates on the antenna. If it is one sided, it is probably an erroneous match.

Summary

X3 models of the antenna have now been made for base frequencies on 20 metres and 40 metres. It has been shown that the 20 metre model can also be made to work on 40 metres and the 40 metre model can be made to work on 80 metres, using adjustment of the Z Match tuner in the radio shack.

The 40 metre model of the X3 operating on its 40 metre base band has produced some surprisingly good results which compare with those from my half wave inverted V, and better the results obtained from other crossed field models I have assembled and tested.

Based on my limited experience with the X3 antennas, I think they work better on their base band than on their secondary band. However the fact that they can be switched between two bands by tuning change within the shack is a useful feature. The main problem on the secondary band is loss in the matching system using the Z Match. I found this particularly applied in tuning up the 40 metre antenna on 80 metres.

A further article will follow on X3 antennas which have been made for a base band of 80 metres and 10 metres. The article will also include an alterative assembly method for the original 20 metre unit and some detail on efficiency measurements carried out on units for three of the bands.

References

1. The VK5BR_X Antenna - Lloyd Butler VK5BR - Amateur Radio November 2004
2. Simple Z Match Tuner Simplified - Lloyd Butler VK5BR - Amateur Radio, June 2000. (Also published on the VK5BR Internet site. Ref 3)
3. Refer to articles on the EH Antenna by VK5BR at:- http://www4.tpgi.com.au/users/ldbutler/
   Or link from:- http://www.qsl.net/vk5br/

ar

Correction to DXCC Standings (AR Jan/Feb page 43)

Headings should have been as follows. Rest of table was correct. We apologise for any inconvenience.

WIA DXCC Standings

(335 entities) (31st. Dec. 2004)

Callsign	Countries	Callsign	Countries	Callsign	Countries	Callsign	Countries
Honour Roll(326) Phone		General listing-Phone		Honour Roll(326)CW		General listing-Open	
VK5MS	335/389	VK3CIM	254/258	VK3QI	334/346	VK3JI	322/351
VK4LC	335/382	VK8DK	253/254	VK6HD	333/354	VK6RO	320/327
VE6VK	335/372	VK2FHN	243/000	VK5WO	331/347	VK4DV	314/329
VK4UA	335/370	VK4AO	240/000	VE6VK	326/353	VK8LC	312/315

table continued in Amateur Radio January/February 2005

FT920 antenna tuner repair

Barry White VK2AAB

Recently my FT920 would no longer find the minimum SWR settings on the 14 MHz band. It was also unable to find the correct settings on other bands. It was becoming an annoyance so it had to be fixed

The tuner settings for each band are stored in an eeprom (electrically eraseable programmable read only memory). When reset, or first switched on, default settings are loaded into the eeprom. These settings give the designer's best guess for a starting point for the antenna tuner. When you press and hold the Tuner button the control board seeks the lowest SWR it can find. When achieved, the new settings are written into the eeprom.

First I looked for what modifications and other information was available on the FT920. I found an article under Hints & Kinks in QST for October 2001. This modification by Anthony Bowyer NT4X described symptoms similar to those I had seen on my tuner. Anthony, due to previous experience, believes that due to the high levels of RF in the compartment with the control board, the eeprom setting can become corrupted. His modification improves the bypassing of the 5 V line by installing a 330 µF 16 V electrolytic capacitor and a 47 nF ceramic on the control board. The electrolytic goes where C5547 is marked; the dot on the PCB indicates the negative connection.

Before opening the radio, make a record of any menu and memory settings that you may have set into the radio. Then restore all settings for the tuner to the default values by doing a reset of the processor. To do this, turn the power off, press and hold both GEN and ENT, and then turn power on again. This will reset everything. If the reset does not restore normal operation on all bands with a dummy 50 ohm load connected to coax socket A or B, then remove the top cover. You will find a power supply module at the top. Undo the mounting screws for this module and after placing some insulating material on top of the PA module the leads are long enough to turn the power module over on top of it.

I applied Anthony's modification but this turned out to be less than straightforward. Where Anthony's article refers to control board socket J5004, it should read J5504. The 47nF (or greater) ceramic capacitor is installed on the 5 V line between pin 1 and pin 8 of J5504 on the tuner control board. After several email exchanges with Anthony it became clear that there are two different versions of the control board. The control board diagram with my FT920 shows pins 6 and 7 being TURL and Ant B signals, with pin 8 being 5 V. However my interconnection diagram between JP5004 and J5504 shows these signals on pins 8 and 9 of J5504, with pin 6 being 5 V. The TURL and Ant B signals go to JP5001 on the main tuner board. In my radio the TURL signal is a blue wire. You can determine which version you have by checking where J5504 pin 6 goes. If it goes to JP5001 put the capacitor onto pin 8, otherwise put it on J5504 pin 6.

The control board modifications did not fix my problem, at least not all of it. The tuning problem was now present only on 18 MHz and above. This showed that the settings for 14 and 7 MHz, stored in the eeprom before doing a reset, were incorrect. So Anthony's modification was needed because the eeprom was being corrupted. But I had to look further to clear up my remaining troubles.

The relays closest to the side of the radio are used to select the adjacent inductors of the tuner. You will see jumper wires on the PCB near each relay. These wires go to the coils of the relays. Nearest the rear of the PCB are two relays without jumper wires. These are the 1.8 and 3.5 MHz relays. To check whether a relay is energised, measure the voltage on the damping diodes connected across its coil; these are mounted close against the coil terminal end of the relays.

You can use Table 1 to check the operation of the relays as you select the bands. Each vertical column represents the bit pattern of the relays that are energised for that band. Each relay is energized, and shorts out a RF inductor, when it has 12 Vdc on its coil. These are the default settings after a reset, with a 50 ohm dummy load on coax socket A. The pattern generally shows that the larger inductors are short-circuited by the relays as higher frequency bands are selected.

Relay (numbers) indicate numbers on the circuit diagram where different from the PCB.

From this I discovered that relay 5028 was the one that had failed in my FT920. It was not closing the contact when energised so the RF inductor was never removed from circuit. Its failure did not affect the 3.5 and 7 MHz bands, probably because the inductance is quite small at 21 MHz, where that inductor is

	Frequency Bands									
	1.8	3.5	7	10.1	14	18.1	21	24	28	50
Relays										
5014 (5013)	0	0	0	0	0	0	0	0	0	1
5025 (5014)	1	1	0	0	1	0	0	0	0	0
5026 (5015)	1	1	1	1	0	0	1	1	0	0
5027 (5016)	1	0	0	0	1	0	0	0	1	0
5028 (5017)	0	1	1	0	0	1	1	1	1	0
5029 (5018)	1	0	0	1	1	1	1	1	1	0
5019	0	0	1	1	1	1	1	1	1	0
5020	0	1	1	1	1	1	1	1	1	0
Tune Fail	N	N	N	N	N	Y	Y	Y	Y	N

Table 1

used. It may be used to improve the Q on 3.5 and 7 MHz. Note that 50 MHz has a separate relay and inductor, so failure on the other bands has no effect.

Finding a replacement relay was a problem. I did not attempt to get a relay from the distributors, as it would have been more expensive, even if they were in stock. The original relay is labelled "TAKAMISAWA JY12H-K 12 Vdc". It is a single pole, single throw relay with no normally closed contact. The nearest relay I found was at Altronics, in their catalogue as S4150, a DPDT relay.

To mount it you must cut off the extra pins, or as I did, drill extra holes in the PCB. Either way you will need to drill a hole for the common contact pin and bend it over towards the copper to make contact. The normally closed contact pin comes through the hole where the original common contact was soldered but this does not matter as it can be soldered in place.

It turned out to be an easier repair than expected, so don't feel nervous about it; have a go!

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WIA news *continued*

for Reconsideration filed today, the League called on the Commission to "reconsider, rescind and restudy" its October 14, 2004, adoption of new Part 15 rules spelling out how BPL providers may deploy the technology on HF and low-VHF frequencies. Asserting that the R&O fails to adequately take into account the technology's potential to interfere with Amateur Radio and other licensed services, the League called the FCC's action to permit BPL "a gross policy mistake." The R&O, the ARRL said, "represents a classic case of prejudgment" by an FCC that knew better but ignored evidence already at its disposal.

Roy VK6BO awarded the Order of Australia Medal for Service to the Community and Amateur Radio

Roy Chamberlain, VK6BO has been awarded the Order of Australia Medal for services to the community through amateur radio and the Travellers Net in the 2005 Australia Day Honours list.

Many will know Roy, particularly from the Australian Travellers net, on 14.116 MHz. Roy has been net controller for the last 16 years.

Peter Harrison, VK6HH, a long time friend of Roy said he could not think of anybody else who so richly deserves to be so recognised. "It gives great pleasure to know he has been awarded the OAM".

The WIA Board extends its congratulations to Roy.

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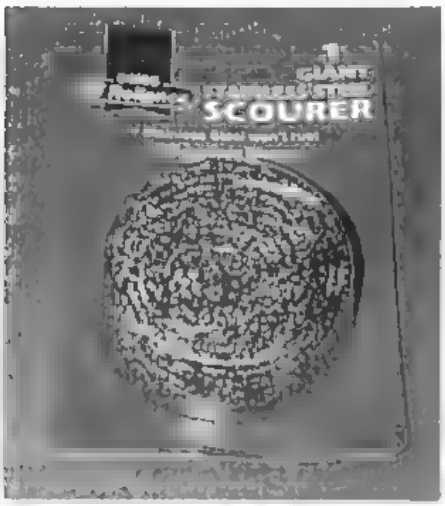
Suds to solder

A better way to get the lead out

Ian Jackson VK3BUF

I was flicking through a catalogue a short time ago, I saw an interesting product. It was a small enclosure with some fuzzy metal stuff inside. The caption said that it was for cleaning the grotty bits from the end of a soldering iron. Being a long time devotee of the damp sponge next to my soldering iron, I said 'Bah! Heresy! A dry sponge is like a boat without water, biscuits without milk, a light globe without moths! ' Scornfully, I turned the page in search of other products...

A week later I found myself in a supermarket – strange but true. While fighting to control the unguided inertia of a fully laden trolley, I spied a collection of brass and stainless steel pot scrubbers. After a brief spark of recognition, which may really have been a static charge from



an over-waxed floor, I recalled that the scourers appeared similar to the contents of the aforementioned catalogue – at a fraction of the cost. I plucked a couple of samples from the little dangling bracket that implores customers to purchase things they didn't know they didn't want (it worked!) and vowed to prove its inferiority by experiment.

Another week later I had just commenced a soldering job and was confronted by a drought-stricken sponge. An invisible mission bell chimed in my head. It was Time. Ripping the scourer from the bubble pack, I thrust it into an inverted cap from a bug spray aerosol. The tip of the trusty Weller iron was well laden with oxidized solder spikes I plunged the tip of the iron into the wiry mass. Without the usual cauterising hiss of a wet sponge, it came away clean and shining. With the shock of realisation one feels when first discovering that a product that is not butter, actually tastes like butter, I had learned that there was another way to keep my soldering tips clean.

Buoyed by this success I was tempted to experiment further. Replacing the stainless steel pot scourer with a similar looking brass one, I sought to optimise the process. Would the solder stick to the brass and make a lumpy mess on the surface? Indeed it did not. The solder broke up into tiny fragments and ozmotically worked their way to the bottom of the container forming a kind of sandy grit that gathered in the corners. After several to and fro trials between the products, I could find no discernable difference in the performance of the stainless steel and brass scourer products. Perhaps the brass seemed a little softer to work with.

All things come to pass, dinosaurs, the stump-jump plough, bottles of whiskey, and now the wet sponge.

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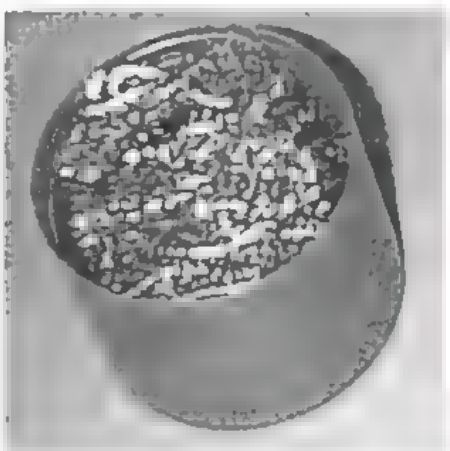


Another method of making "air-wound" transmitting coils

Drew Diamond, VK3XU,
45 Gatters Road
Wonga Park, 3115.

There are many factors which affect coil quality- or "Q". Early radio workers quickly found that one of the major considerations in the efficiency of practical coils is the type of dielectric material used for the coil former. All dielectric losses associated with the coil, including any insulation upon the wire, will add to the effective resistance of the coil (Ref 1). In HF work, a helix of more than a few turns usually requires some kind of former, or mechanical support.

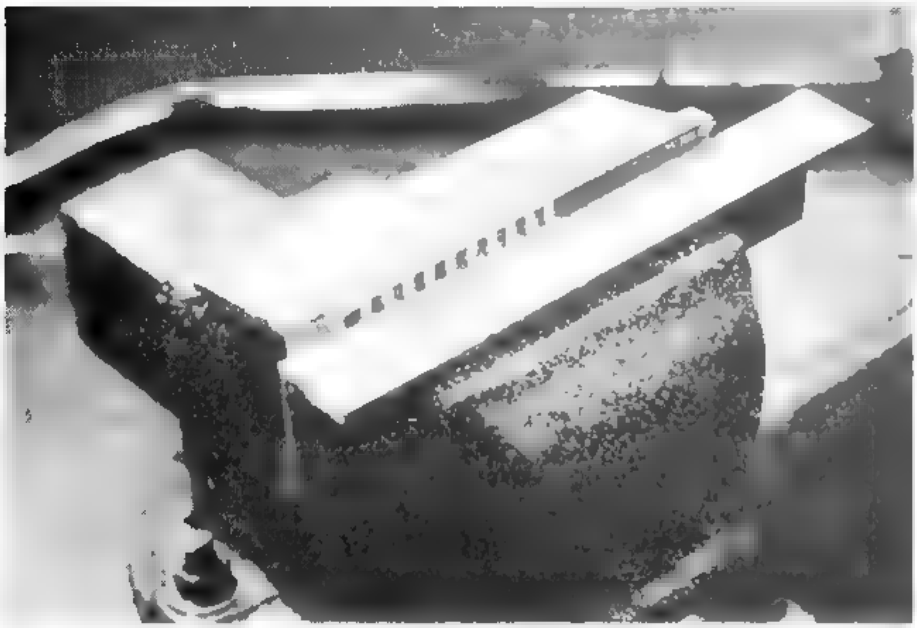


Photo 1. Slotting a rib in the vice with soft jaws

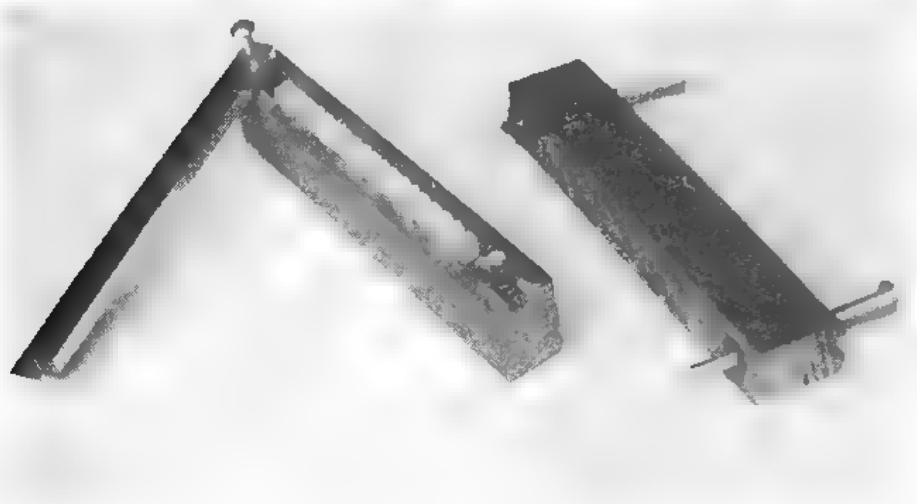


Photo 2. The coil jig

Such inductors should be wound with plain or enamelled copper wire (or tubing or strip) upon a former using the minimum of dielectric material.

For devices such as the popular Z-match, which uses a coil of relatively few turns, the pre-drilled Perspex method may be employed (Ref 2). But the job becomes increasingly difficult for coils of more than about ten turns.

Various methods have been described for making so-called "air-wound' coils. The name is not strictly accurate, because strips or rods of insulating material (usually polystyrene or Perspex) are fitted along the coil's length for support, or a piece of Perspex sheet is incorporated into the winding (Ref 3). This skeletal approach gives good rigidity, yet adds the least amount of superfluous dielectric material (Refs 4 and 5). Another (perhaps easier) method is offered here, which allows the amateur to fabricate coils of similar style to the familiar Air-Dux and B & W patterns.

The most often quoted formula for calculating the inductance of reasonably proportioned (i.e. not too long or short) single-layer solenoids is;

$$L\mu H = \frac{N^2 \times r^2}{9r + 10l} \quad \text{(Ref 6)}$$

Where N = number of turns, r = coil radius in inches and l = winding length in inches.

For younger readers more used to metric units, the formula becomes;

$$L\mu H = \frac{N^2 \times r^2}{25 \bullet 4 \times (9r + 10l)} \quad \text{(Ref 3)}$$

Where N = number of turns, r = coil radius in mm and l = coil length in mm.

This writer has found that the formula gives results within about 10 % of measured value at 1 kHz (where most

"laboratory" bridges work), but may be as much as 20 % out when the inductance is measured at radio frequencies.

Note that wire gauge is not in the equation. Obviously however, for moderate to high transmitting power levels (indeed, at any transmitting power level), wire diameter should be as near optimum as possible (Refs 7 and 8).

My apologies in advance for mixing Imperial and metric measurements in the following example, where an inductance of 13 microhenries is constructed for a pi coupler project. Applying the formula; it is found that 18 turns of #13 B&S/15 SWG (1.9 mm) enamelled wire, winding length 3.5 inches (889mm), 1.375 inches (35mm) radius yields an inductance of about that value. By spacing the turns we significantly reduce the inter-winding distributed self-capacitance (more ideal for vertical antenna loading coils), and in practical terms, allow tap connections to be more easily made (a desirable feature in ATU/couplers and PA tank coils).

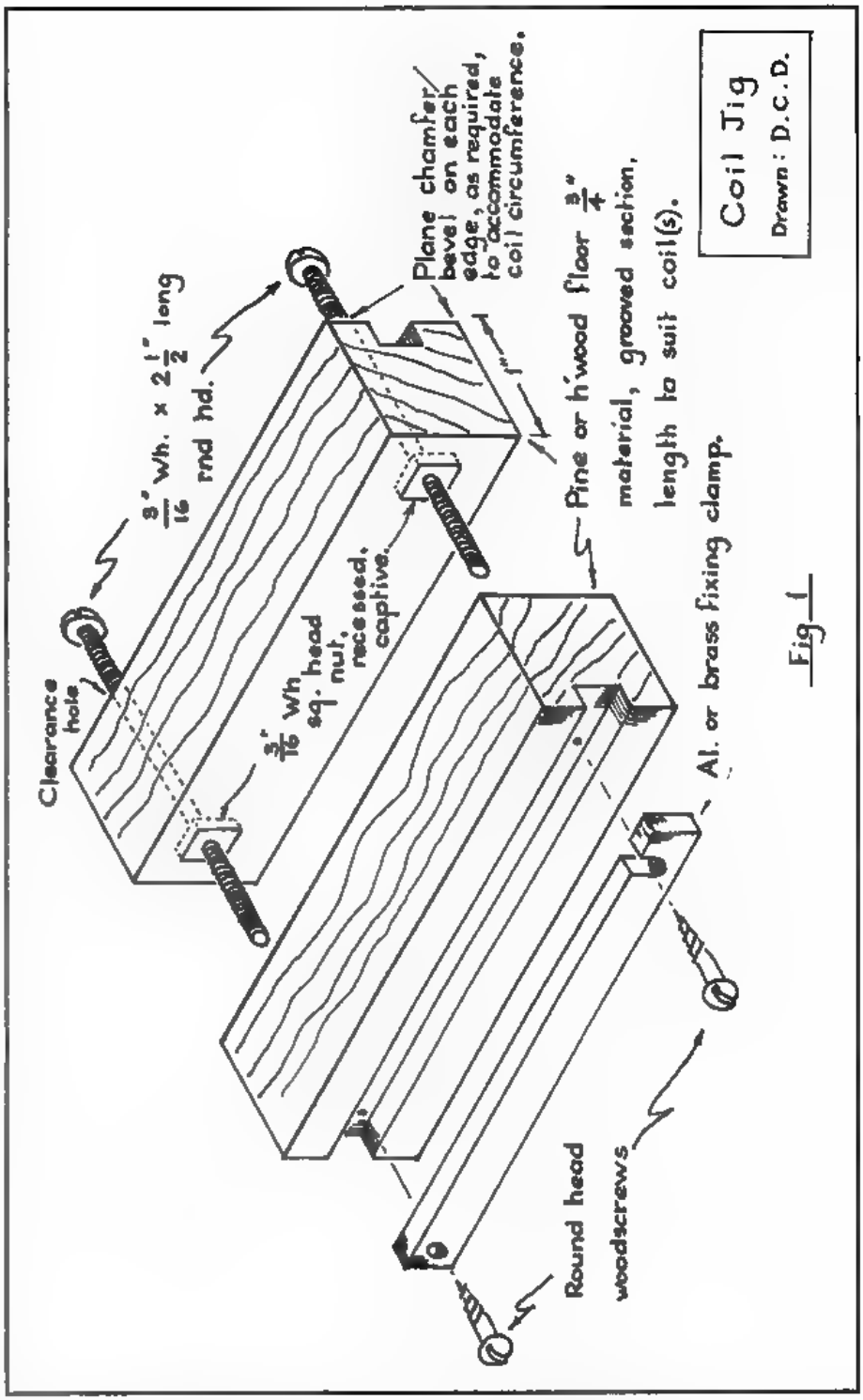
The jig

Our helix is accommodated upon two ribs made from pieces of 1/4" thick Perspex material. Round Perspex rod or other low-loss material would also serve. For our 18 turns we need 18 slots. In this example, spacing between turns is 5 mm, i.e. the winding "pitch" is 5 mm. A 95 mm length rod is accurately marked out accordingly.

A rod-saw fitted into a hacksaw frame is an ideal tool for cutting the slots. Photo 1 shows a rib clamped between scraps of extruded aluminium in my vice whilst sawing the 18 slots. Note how the soft jaws provide a depth stop, thus assuring an even depth for each slot.

Illustrated in Fig 1 and Photo 2 is a suggested form of jig for holding the helix. The wood parts are cut from the groove section of ordinary floorboard material. As most transmitting coils are over 2 inches diameter; they may each have a width of about 1 inch (25mm), length according to planned coil work. That shown is 6 inches (150mm) long. A bevel or chamfer should be planed on their outside edges as noted on the drawing.

So that the ribs may be held apart at the coil's diameter preparatory to gluing, pair of 3/16" (5mm) Whitworth screws is fitted as shown. Their square head nuts are held captive in shallow



recessed holes. They may be glued there, or simply pressed in for a snug fit inside the holes, whose diameter is just a tad less than the nut diagonals.

In order that the helix may be held captive whilst inserting the second half of the jig, a corresponding length of aluminium or brass rectangular rod is fitted with wood screws to one half, as shown. Note the cut-away hole in the rod- which speeds up the clamp/release operation.

Winding the coil

When a helix is wound upon a mandrel, the diameter will increase (spring outwards) by about 15 % when removed. In our sample coil, where a diameter of 2-3/4" (70 mm) is required, the helix is initially wound upon a mandrel of about 2-3/8" (60 mm). A rummage through your re-cycle bin should produce (say) a bottle of the necessary diameter for use as a mandrel.

In this instance, a bottle of about 60 mm diameter would be ideal. Calculate the length of wire required; π x d x number of turns: - 3.14 x 70 x 18 = 3956 mm rounded to 4 m. Clamp one end of the wire (or the spool) in a vice, then extend the wire to its full length, with a bit to spare. Leaving a tail of perhaps 6" (150 mm), fasten the wire onto the mandrel with sticking tape. Whilst keeping the wire taut; walk towards the vice and wind on the required number of turns as you go. My completed winding-or helix is shown in Photo 3.

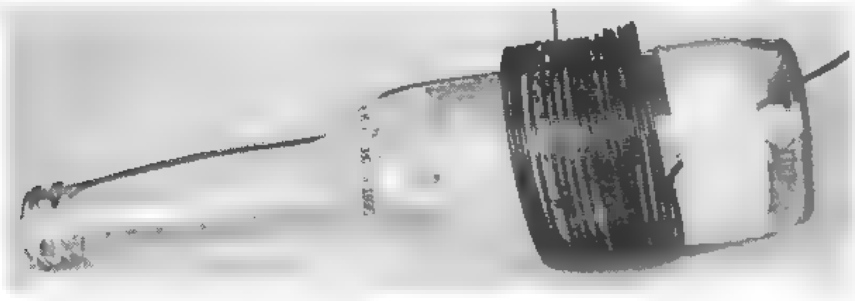


Photo 3. My mandrel

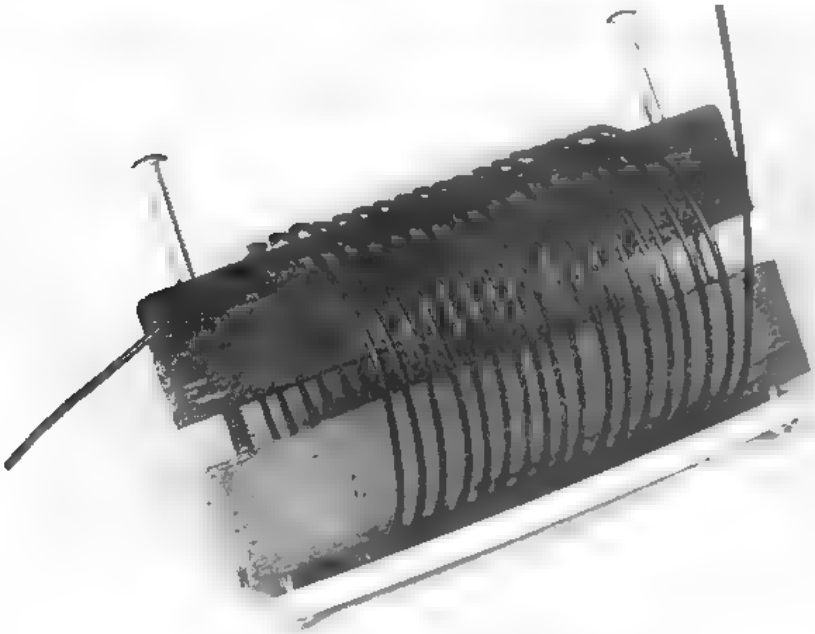


Photo 4. The coil ready for gluing

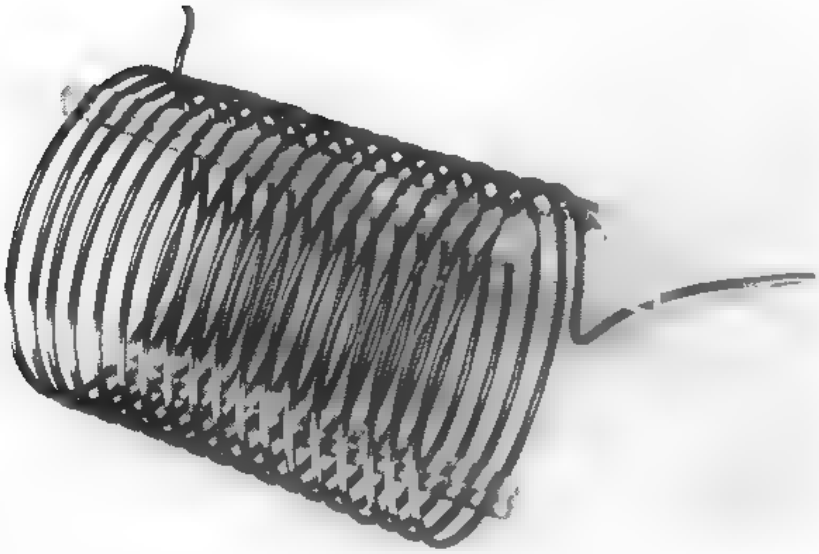


Photo 5.The finished coil

Using the jig

A slotted rib is installed into the groove as shown in Photo 2, then the jig half is placed inside the helix, whereupon the turns may be carefully juggled into each slot. When they are nicely bedded, the clamp may be swung across and secured in place.

Install the second rib in the other half of the jig, which may now be inserted inside the helix. Partially take up the slack by turning the screws until they begin to bear upon the opposite half. It should now be possible to carefully juggle the turns into their respective slots. When they are in position, the two screws are further advanced, thus securing the helix. See Photo 4.

Swing the clamp bar to one side, and then carefully and sparingly apply a bead of epoxy glue along the ribs, whereupon the glue should wick down into the slots. Immediately position the assembly vertically so that any excess glue runs down and drips off the ends of the ribs.

When the glue has set, slacken off the two tensioning screws and remove the jig assembly, thus freeing the coil. My completed coil is pictured in Photo 5. An additional Perspex rectangle has been glued upon it so that the coil may be fitted onto insulated posts, as part of the pi coupler project.

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3. "Making Air-Wound Coils for HF"; Diamond, Amateur Radio, June 2000, pp6 - 8.
4. "Low-Loss Low-Cost Transmitting Coils"; Muldoon, W1FRQ, QST Dec. 1934.
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6. Radio Engineers' Handbook; F Terman, 4th edn., p55 (excellent reference).
7. "The Q of Single-Layer Air-Core Coils"; G Murphy, VE3ERP, QEX, Sep/Oct 2001 pp 33- 37.
8. Radio Data Charts; Beatty & Sowerby, 4th edn, Iliffe/Wireless World.

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Wrong place, right time

An amateur radio DXpedition team suddenly finds itself providing emergency communications in Andaman and Nicobar Islands during the recent earthquake/tsunami disaster

Mrs. D. Bharathi Prasad VU2RBI

Amateur radio DXpedition is a radio sport activity for HAM Radio operators worldwide and HAMs conduct expeditions to various islands with an aim to contact more distant countries. These expeditions with continuous operations help in studying propagation conditions, conducting research work in wireless activity with state-of-the-art equipments held by HAMs. It would also prove capabilities of Indian HAMs to reach out to millions of people across the globe by establishing direct radio contact with as many people as possible, which in turn promotes international understanding and tourism.

The NIAR DXpedition team: L to R: R. Sarath Babu VU3RSB, D. Varun Sastry VU3DVS, D. Bharathi Prasad VU2RBI, D. N. Prasad VU2DBP, S. Ram Mohan, VU2MYH

A team of five Amateur radio operators under the leadership of the undersigned, Mrs. D. Bharathi Prasad (VU2RBI) with other hams with call signs, VU2DBP (D.N. Prasad), VU2MYH (S. Ram Mohan), VU3RSB (R. Sarath Babu) and VU3DVS (D.S. Varun Sastry, aged 15 years and the youngest of all) was permitted by Department of Telecommunications, Ministry of Information and Technology, Government of India to proceed to Andaman and Nicobar Islands on a DXpedition of Amateur Radiocommunication from 3rd to 31st December 2004 with special call signs of VU4RBI and VU4NRO. National Institute of Amateur Radio (NIAR), an NGO with its headquarters in Hyderabad, which is promoting the subject of amateur radio communication in the country and Ministry of Information Technology, Government of India, have sponsored the DXpedition.

Team leader Mrs. D. Bharathi Prasad VU2RBI

The DXpedition was formally inaugurated by Honorable Governor of Andhra Pradesh on 25th November 2004. Team members met in the headquarters of NIAR to select the equipment needed for the communications from NIAR's inventory before proceeding to Port Blair. The equipment comprised high frequency transceivers, yagi antennas, vertical antennas, dipole antennas, masts, amplifiers etc. The team arranged for packing of the same for safe transport to Port Blair. It was also decided about the frequencies of operation and modes of operation for communication. Several of us including me proceeded by air and reached Port Blair on 1st December 2004 and the rest of the members and other technical assistants of NIAR came by ship from Chennai on 2nd December 2004.

On reaching Port Blair we met the local authorities including Chief Secretary, Govt. of Andaman and Nicobar; Secretary, General Administration and other functionaries including the Principal, Govt. Polytechnic College and explained to them about the expedition. Chief Secretary desired that a station should be established in the Science Centre where students would understand the amateur radio communication in addition to a station in Polytechnic College and if possible to go over to some other Islands also. They have extended complete

support to the team. One station was erected in Govt. Polytechnic College, the second in the hotel premises where some members were accommodated and the third in the Science Centre.

In addition to the support extended by the local administration, the officers of the Army Signals Unit of Port Blair have also extended their cooperation to the team by sparing the technical manpower to help erect the antennas and also for some local logistics. Erection of yagi antennas and dipole antennas was very interesting. It took almost two days to assemble the seven element tri-bander yagi antennas and for their erection. Dipole antenna erection was comparatively easier.

Mr. Suri, the chairman of NIAR, K4VUD, Mr. Charles Harpole and Mr Henry, SM0JHF visited us after 15th December and inspired us with their experiences and some ham demonstrations for local people at science center, Port Blair. The antennas shipped by German DX Foundation arrived in Port Blair around 15th December and the same were useful specially for WARC bands.

Following frequencies (in Megahertz) and modes were operated by the team members.

PSK	CW	SSB
(Through Computer modem)	(Morse code)	(Micro-phone)
7.03	3.510	3.795
14.071	7.010	7.060
21.071	14.010	14.190/14.285
—	21.010	21.285

These frequencies are operated as per the Indian rules and regulations. Propagation wise 7 megahertz was open from about 3.00 A.M. to 8.00 A.M. for distant (dx) contacts and from 9.00 A.M. onwards 14 MHz/18 MHz/21 MHz/24 MHz/28 MHz were active for SSB/CW. The propagation was observed through east covering all the eastern countries including Japan and back to west covering European countries. After 6.00 pm onwards, North was used for communication purposes. It was possible to contact long distance stations even with simple dipole antennas due to seacoast.

It was a pleasure talking to hundreds and hundreds of radio amateurs round the globe and controlling the pileup each day of the expedition. Some times it used to be difficult in catching up with low power operators as high power operators used to 'hijack' the situation. However, I have taken every care to exchange reports with such low power operators including mobile operators. I have operated the radio from early hours of 3.12.2004 to early hours of 26.12.2004 for DXpedition with hardly three to four hours of sleep a day and made about 23,000 contacts individually with almost all the countries and including other team members we have made a total of about 35,000 contacts before the earthquake and the associated tsunami struck our location in the wee hours of the 26th December, which was terrible. We have communicated through almost all the modes mentioned above.

In the early hours of December 26, while the other guests in the hotel were fast asleep, I was continuing with my DXing with the usual spirit and was talking to an Indonesian ham. All of a sudden, I felt tremors at around 6.29 am, realised it was an earthquake, shouted "tremors" into microphone and rushed out of the room raising alarm alerting others.

The DXpedition suddenly changes

In the early hours of December 26, while the other guests in the hotel were fast asleep, I was continuing with my DXing with the usual spirit and was talking to an Indonesian ham. All of a sudden, I felt tremors at around 6.29 am, realised it was an earthquake, shouted "tremors" into microphone and rushed out of the room raising alarm alerting others.

All the occupants of the rooms rushed out and gathered in the lawns of the hotel building. Immediately, after the tremors, my team members from their shack rushed to my hotel and joined me and by God's grace we were all safe. After about half an hour, I went back to the radio shack and checked for the antenna on the rooftop, which was disturbed by the tremors and had to be re-erected. There was no power and the hotel management put on the generator. Immediately, I went on air and contacted hams from Thailand (HS0ZAA, Mr.John) and main land of India (VU2UU, Mr. Shanker from Chennai; VU2MYL, Mrs. Rama from Hyderabad) who have confirmed the tremors in their locations as well. I could guess the magnitude of the damage due to the earthquake and decided to suspend the DXpedition operations and start emergency communication with the mainland (VU) and other people from then onwards by turning the antenna beam to mainland.

The telephone lines went out of order and within a few hours, we had come to know the extent of damage in Port Blair through local people. While the news of death and devastation caused by the tsunami/earthquake in other parts of India was quickly transmitted around the world, the situation in Andaman and Nicobar Islands was not known. I went on broadcasting information about the situation to anyone who could hear my signals. Simultaneously, I sent my team members to the office of the Chief Secretary, Government of Andaman and Nicobar Islands expressing our willingness to extend our support for establishing emergency communication for the help of administration. The Deputy Commissioner (DC) requested our services on 27th December and we immediately established a radio station in control room of DC's Office on 27th itself, operated by me and VU3RSB. At the request of DC, two of our team members (VU2MYH and VU2DVO) proceeded to Car Nicobar Island on the morning of 28th December in a military aircraft and established communication between Port Blair and Nicobar.

We were to handle hundreds and hundreds of messages each day from mainland and the affected areas due to the collapsed communication infrastructure and ours was the only link for thousands of Indians and other country people who were worried about their friends and families in the Islands. Also, our station in the control room became the centre of messages between Port Blair and Nicobar Island. Survivors in Car Nicobar were communicating with their relatives in Port Blair through our stations. Other hams of the country located in the mainland have helped us in relaying the messages whenever there was skip between our stations in the Islands. When telephone lines were restored on Tuesday, 28th December,

the information received on radio about the survivors from Car Nicobar was conveyed to their anxious relatives on the mainland that they were alive. We have also helped about 15 foreign tourists including several from US to send news to their families. At the request of DC, one of our team members (VU2JOS) was sent to Hudbay Island along with other Government officials for relief activity. The common man was totally happy in utilizing our service and the magnitude of their satisfaction on receiving the information about the welfare of their kith and kin is beyond one's imagination. We were not brave enough to sleep inside the hotel rooms during nighttime and were sleeping in the open air in the lawns of the hotel. Tremors continued all along the six days of my stay after the tsunami and even afterwards. Mr. Charles Harpole, K4VUD of USA and Mr.Henry from Sweden both visited our shack during DX-pedition. Also Mr. Charles observed our handling of emergency traffic on 26th December and left for Thailand on 27th December.

I continued emergency communication till the forenoon of 1st January 2005, the day of my return to Delhi. However, my team members are continuing in Port Blair, Nicobar and Hudbay Islands and few more have joined from NIAR on 2nd January 2005 for proceeding to other Islands which have no other means of communication.

Though we went to Andaman and Nicobar Islands for DXpedition, the circumstances have led us to conducting emergency communication, which was a sheer coincidence. The representatives of different media agencies including Associated Press, Washington Post, Zee News, etc. have witnessed our service to the society in the need of the hour through amateur radio and acknowledged the same. I am also thankful to them in spreading the awareness amongst the public about amateur radio communication. The potential of amateur radio communication in bringing people together is thus established once again.

I am proud of my team who extended all the support for the operations during the period of my stay in Port Blair.

I left Port Blair with heavy heart for the departed souls.

The following stations are operating in Andaman and Nicobar Islands as of 7.1.2004:

Station Call sign	Location
VU2LIC	DC's office, Port Blair
VU2LFA	APWD office, Port Blair
VU3RSB	Nehru Yuvak Kendra, Port Blair
VU2MYH	Port Office, Nicobar Islands
VU2DVU	"
VU2DSV	DC's office, Nicobar Islands
VU2MCK	"
VU2JOS	Hudbay Islands
VU2CPV and others	Cambel Bay Islands
VU3VCC	Naval Base, Cambel Bay
The following stations in mainland are assisting the above stations in Islands:	
VU2RBI	New Delhi, (she was in Port Blair from 1.12.2004 to 1.1.2005)
VU2HFR	Kolkata
VU2PEB	Kerala
VU2HIT	Mumbai
VU2MUE	Delhi
VU2DBP	Delhi

I am thankful to Government of India for permitting me to conduct the DX-pedition, particularly, the authorities of Ministry of Information and Technology and the National Institute of Amateur Radio for sponsoring the DXpedition. I am also thankful to fellow hams worldwide that have made the DXpedition successful through their individual efforts and those who helped in conducting emergency traffic.

The potential of amateur radio communication in bringing people together is thus established once again. I am proud of my team who has extended all the support for the operations during the period of my stay in Port Blair.

(Mrs. D. Bharathi Prasad, VU2 RBI)
Chief Coordinator, NIAR,
New Delhi.

Multiband magnetic loop

160 – 15 metres from your coffee table

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Web: http://www.qsl.net/vk3ye

Will I cause interference? Would I upset the neighbours? Will I need a planning permit? Will the council or body corporate object? Or are my transmitting days over because I've moved into a unit?

These and similar questions must have gone through the minds of countless amateurs, who when moving house, are wondering whether they can retain their interest or be forced to give it up.

In this article I will show that in 99% of cases, the answer to the questions above is NO! House or flat, ground floor or top, balcony or no balcony, earth or no earth, you'll be able to make contacts on any HF band. And that includes 160 metres!

This article describes an easy to build magnetic loop antenna to get you back on the air. It offers continuous frequency operation between 7 and 21 MHz, plus the 1.8 and 3.5 MHz amateur bands. It will work indoors or outdoors and access to an earth ground is not required. On receive the antenna's null can lower local noise, while on transmit its high-Q suppresses spurious signals and reduces TVI risks.

Any spot that's roomy enough for a person can accommodate a magnetic loop. And unless you've enough loft space to string dipoles in the attic, or a high balcony rail on which to mount whips, this antenna will do better than most other 'limited space' antennas, giving near-dipole performance on the higher HF bands. Provided care is taken in construction, the results are repeatable and are well documented by amateurs worldwide who use magnetic loops daily for local and distant contacts.

Photo One: Full view of the magnetic loop

1.0 Description

The whole antenna stands approximately 1.8 metres tall. It comprises a 4.2 metre length of 19mm copper tubing bent into a circle. A timber stand and base support the loop. The antenna is basically a giant tuned circuit that is brought into resonance

on the operating frequency.

A dual gang variable capacitor adjusts the loop's resonant frequency from below 7 to above 21 MHz. To reduce resistive losses introduced by the capacitor's wiper contacts, the gangs are effectively connected in series, and the frame left floating. Parallel capacitors are wired across the loop's ends to lower resonance for the 1.8 and 3.5 MHz bands. The coaxial feedline is coupled to the antenna via a length of thinner brass or copper tubing.

Most materials can be purchased at a hardware store The loop can be built in an afternoon, requires only hand tools to assemble and costs less than eighty dollars to construct.

2.0 Design considerations

(those who just want to build it now can skip this section)

Band coverage

The main difference between this and other published designs is its frequency coverage. Most others have only a 2:1 or 3:1 ratio frequency range, with some operators using two differently-sized loops to cover all bands. Apart from the hassle of lead-swapping when changing bands, the extra construction effort, cost and storage space of two antennas made this option unattractive.

Though aware that efficiency falls on the lower bands and acting on the maxim that 'any antenna is better than no antenna', I decided that there was nothing to lose by adding 80 and 160 metre capabilities. As mentioned later, the results achieved were most gratifying, even on 160 metres. Given the current phase of the solar cycle, and the reduced efficiencies of a smaller loop, it was an easy decision to omit 10 and 12 metres and allow it to be slightly large for 15 metres.

Loop size

Two factors determined the maximum size of the loop. One is that the circumference of the loop should be

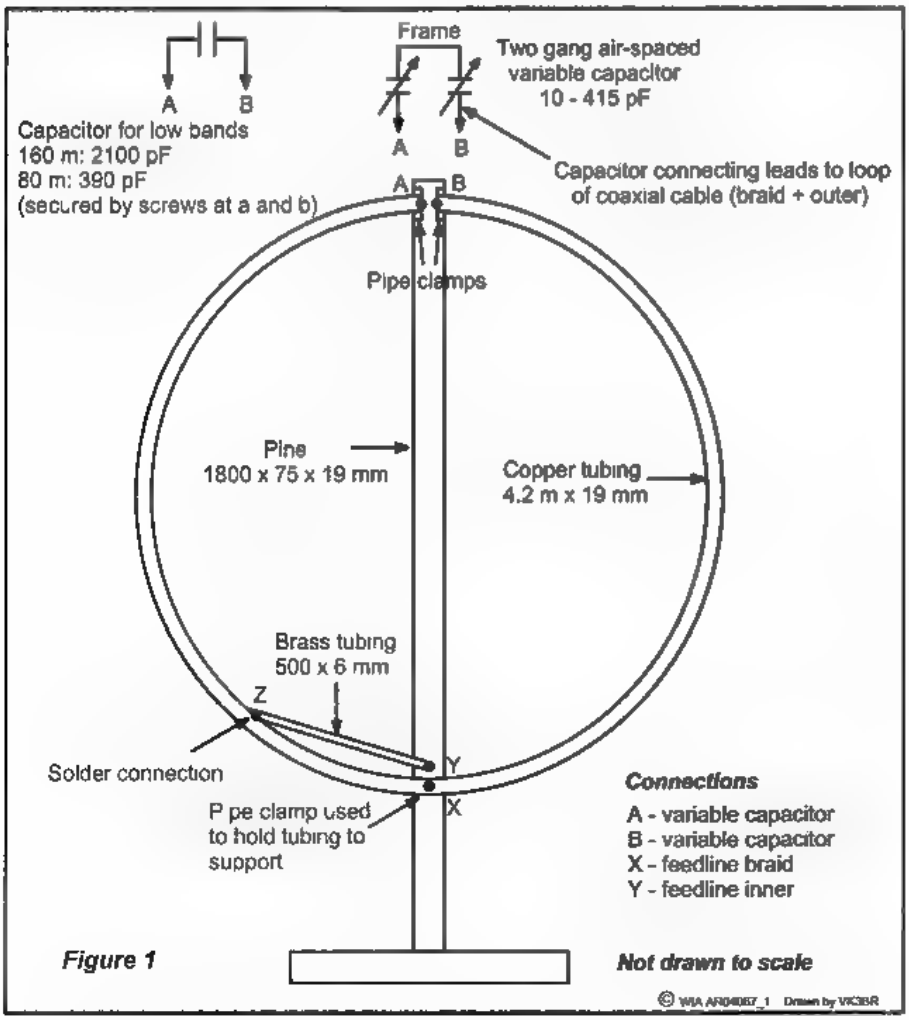

Figure One: Construction of the loop

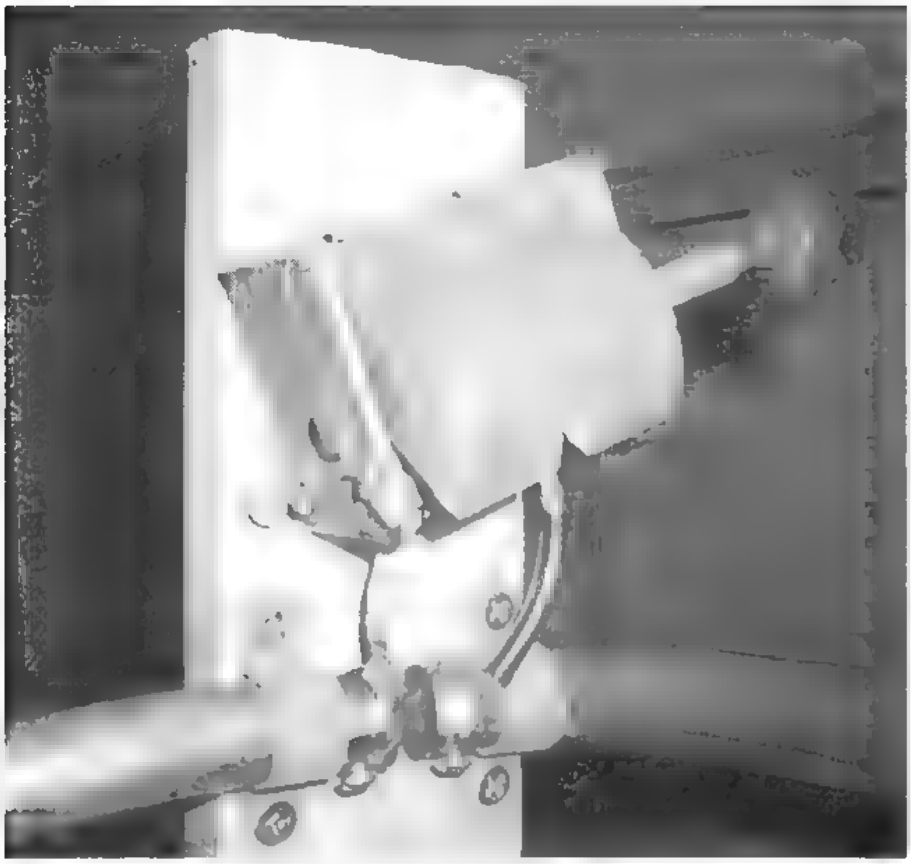

Photo Two: The loop's variable capacitor

less than a quarter wavelength at the highest frequency band to be used. If it's any more the antenna behaviour changes. Secondly, and assuming it will be used indoors, its height is limited to that of your front door if you'd like to be able to take it with you when you next move house.

The size constraints can be relaxed if you are willing to sacrifice the higher HF bands and/or can erect it outside. Even if you have only a small courtyard, it should be possible to fit a three metre diameter loop. This could give outstanding results on 40 metres, good results on 80 metres and improved performance on 160 metres. An upgrade to six metres diameter would do even better, providing performance competitive with full-size antennas, even on 160 metres. If the support pole is also used for parallel dipoles for 30, 20 and higher bands, the result would be an excellent multiband antenna system in little more space than is required for the 30 metre dipole alone, especially if you had motorised control of the variable capacitor.

Though the loop's nulls are deep, they are also narrow. Thus you could get away with leaving the loop in a fixed position, perhaps to favour a particular DX path or null out an annoying noise.

Loop construction material

19 millimetre diameter annealed copper tubing was chosen for the loop. This is self-supporting, can be bent by hand and is commonly stocked by hardware stores. The circular shape selected offers slightly higher efficiency than a square or octagon because it covers more area. The tubing was the most expensive part of this project, costing approximately $50. Two telescoping lengths of much thinner brass tubing (bought from a hobby shop) were used for the coupling to the feed line.

Variable capacitor

Some designs use vacuum variables but this approach was rejected due to their scarcity and expense. Instead a two-gang air-spaced variable capacitor, with the sections connected in series, was used. This has proved adequate for power levels up to at least 20 watts.

A vernier drive would be nice but was not added in the prototype. If you'd like to be able to control the tuning capacitor near the bottom of the antenna while getting some vernier action, try using a knob, spindle, string or fishing line and a dial drum from an old valve broadcast receiver attached to the variable capacitor.

Method of feedline coupling

I first used a small loop of coaxial cable within the main loop. This worked but its position needed to be changed for lowest SWR on each band. Thus the feed method was changed to that shown here, which does not suffer this problem.

Use of radials

This is suggested in the reference as a way of improving the loop's efficiency. Connecting wire radials made no improvement to the antenna's performance. They also create a trip hazard if used indoors. Thus they were omitted.

3.0 Construction

Construction should be almost self-explanatory from the diagram.

Start by cutting the copper tube to its required 4.2 metre length and hand-bend it to form a giant circle. The ends should be about 20 mm apart. Place this to one side.

Cut the pine plank to approximately 1.85 metres long. Place the offcut aside; this will be required later to construct the base.

Drill a hole at each end of the copper tubing to accommodate self-tapper screws. These holes will be separated by approximately 35 mm and form the mounting points for the fixed capacitor needed for 80 and 160 metre operation.

Clean the ends of the tube with sandpaper and tin with solder. The usual 20-30 watt soldering iron won't be enough, so use a cheap butane torch for this job.

Make two 50 mm jumpers for the connections to the variable capacitor. Thick copper strap would have been ideal, though tinned coaxial cable braid was used in the prototype. With the butane iron, solder each jumper to each end of the tubing at points 'A' and 'B'.

With the flame still burning, tin the lower centre section of the loop (point 'X'). Then with the electric soldering iron tin the RG58 feedline's braid Use the butane flame once again to make a connection, but don't apply so much heat that you make a mess of the coax. Finally solder the 500 mm brass tubing between an appropriate spot on the loop and the

coaxial feedline inner (point 'Y'). If you don't have anything long enough, either use two smaller telescoping tubes or try brass welding rod. The experimentally inclined might wish to first use sections of coax braid and substitute the tubing only when they've found the optimum length for Y-Z.

Use three water pipe clamps and wood screws to mount the loop onto the plank. Two clamps are at the top (capacitor) end and one at the bottom (feedpoint) end. Allow enough overhang at the top of the support to mount the variable capacitor and at the bottom for the base.

Use the remaining timber to make a stable base. This should have a footprint of at least 400 mm square approx to stop the loop tipping over. The photos shows how this was done in the prototype. Use two large bolts to securely mount the stand to the base.

Solder both gangs of the variable capacitor to the free ends of the 50 mm coax straps at the top of the loop. Because we are using both halves of the capacitor in series the frame of the tuning capacitor is not connected to anything. Use small right-angle brackets to mount the variable capacitor to the pine support.

If the loop is to be used outdoors, take the time to prevent moisture ingress by (i) painting the timber before mounting the hardware; (ii) making a protective hat or box for the variable capacitor and the top of the stand and (iii) applying Silastic sealant around the feed point area of the loop.

4.0 Testing

Connect the loop to a 7 MHz transceiver. Adjust the variable capacitor until the receiver's noise level peaks. This should occur towards the maximum capacitance end (plates meshed) of the capacitor's rotation.

Repeat for the 10, 14, 18 and 21 MHz bands, again retuning for noise peaks. If noise peaks cannot be heard on the 21 MHz band it means that the minimum capacitance of your tuning capacitor is too high. Either try another variable capacitor or remove any parallel trimmers for a lower minimum capacitance.

Retune the loop and receiver to 7.1 MHz. Connect a VSWR meter between the transceiver and the loop. Apply a 5-10 watt carrier and watch the SWR meter. It should hardly budge. If it doesn't, adjust the transceiver's VFO until the lowest reading is indicated. Repeat the test to verify resonance on each higher band.

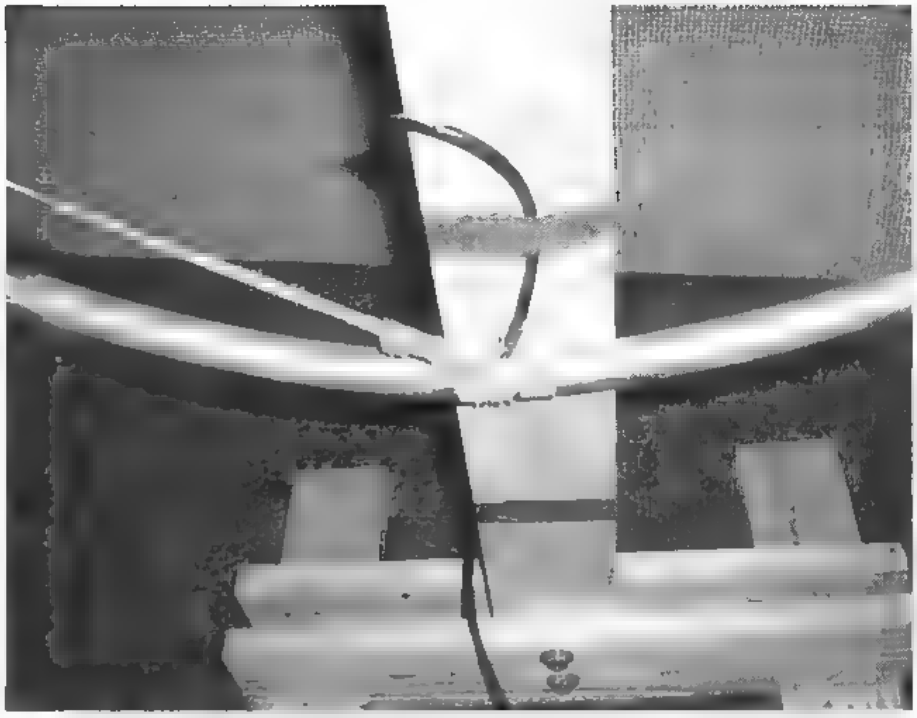

Photo Three: Feedline connections and base

If you cannot get an acceptably low reading, you may need to vary the length of Y-Z, possibly using some coax cable braid to find the optimum position for 'Z', after which you can substitute tubing or rod. Always remember that voltages on magnetic loops can be very high even with low transmit powers, and you should avoid touching the antenna whilst transmitting.

To reward your efforts, now get on air and make some contacts, which at this phase of the solar cycle are easiest obtained on 7, 10 and perhaps 14 MHz. Rotate the loop to use the null to reduce interference, and see how its sharpness depends on if the arriving signal is ground or skywave. It is also worthwhile to connect an antenna switch to compare the loop with any other antenna you may have.

After being satisfied that all is working on the higher bands, confound the sceptics by trying some 80 and 160 metre operating. Ferret around in your junkbox for high voltage capacitors that are of a type suitable for RF, such as silver mica. You need 390 pF for 80 metres and 2100 pF for 160 metres. If you lack these exact values, there is nothing wrong with paralleling several smaller values to make it up. Solder to terminals that suit the screws you've installed on the tubing across points A-B, near the variable capacitor. Again use a receiver and then a transmitter to verify resonance and low SWR on 1.8 and 3.5 MHz.

Have no suitable fixed capacitors but need 80 metres? Just short one of the gangs of the variable capacitor to the frame. Losses will be slightly higher (due to resistance between the capacitor's frame and rotor) and adjustment will be touchy, but it will still work.

5.0 Operation

The Q of this antenna is very high. This means that it can only operate efficiently over a narrow frequency range. Almost every time you change frequency, you will have to change the setting of the variable capacitor.

As mentioned before, this is done by peaking the capacitor for maximum received noise at the desired operating frequency. If the reflected power is high, make further tiny adjustments until it is acceptable. A resistive-type bridge (rather than a conventional SWR meter) is preferred because of the ability to tune up without causing interference.

Note that the loop is directional, with a sharp null when the element is facing the direction of the incoming signal. This makes its behaviour different from that of full-sized quad elements, where the null is off the sides of the loop. This directivity can be useful when nulling

out interference. It is also useful to remember when other stations report difficulty in hearing you, turning the loop may improve your signal.

6.0 Results

This has been the author's third magnetic loop. Each performed well, but this one has the most frequency span and is the most versatile. Loop antenna calculation programs indicate efficiencies varying between 0.25% on 160 metres, 17% on 40 metres and 92% on 15 metres.

The most rigorous comparison between the loop and a full-sized outdoor antenna was done on 80 metres during the 2004 VK/Trans-Tasman 80 metre SSB contest. Two hours operating into an end-fed inverted-L wire in a local park was followed by a similar time with the magnetic loop in a noisy ground floor apartment. Five watts was used in each case. Results were as in the following table:

	Inverted-L (outdoors)	Mag loop (indoors)
Operating time	1hr, 50 min	2hrs, 20 min
No contacts	57	36
Avg contacts/hour	31	15
No contacts to VK2	15	8
No contacts to VK3	20	17
No contacts to VK4	1	1
No contacts to VK5	8	5
No contacts to VK6	1	1
No contacts to VK7	2	4
No contacts to ZL1	2	0
No contacts to ZL2	4	0
No contacts to ZL4	4	1
Percent outside VK3	65%	53%
Percent VK6/VK8/ ZL	19%	6%

As expected, the full-sized antenna did better, but the loop was no slouch, achieving a respectable 15 contacts an hour. Many of the more distant contacts made with the loop would have been a struggle for the other station. However a small power increase to (say) 20-50 watts would have provided 'armchair copy' for these stations and the prospect of DX contacts provided the receiving environment was sufficiently quiet.

Buoyed by the results on 80 metres, attention was turned to the more challenging band of 160 metres, where the effective radiated power is merely milliwatts. After a suitable value of capacitance was arranged the loop was successful here too. SSB and CW contacts have been made throughout Victoria with 5 watts to the indoor loop, though to be fair most have been fairly marginal. However during the day the loop has performed well on the morning nets, with ten watts AM being solidly readable out to over 10 kilometres, with reports received up to 30 km away.

40 and 30 metres provide better prospects for interstate working, with many amazed at signals received. Expect reliable contacts out to about 1000 km during the day and 3000 km around dusk. 20 and 17 metres are good for even longer distances, with multihop paths to Europe and North America sometimes being workable, even with low power.

I should also mention two things first-time loop users will notice; one bad, the other good. The bad is that due to the loop's small capture area, fading on signals is more marked than on larger antennas that provide a measure of reception diversity. The other observation is that magnetic loops, even if low to the ground, seem to radiate equally in all vertical angles (including the low angles so important for DX). This contrasts with a half-wave dipole, which at normal heights mostly radiates straight up (at least on the lower HF bands). Where it is not possible to erect a high dipole, a low magnetic loop could well outperform it, especially in situations where the loop's efficiency is reasonable, such as on 30 metres. Another case where small loops could outperform many low horizontal wire antennas is for local ground wave work on 160 metres, though the loop described here is too small to test this theory.

7.0 Conclusion

A compact magnetic loop covering most HF bands has been described. It's easy and cheap to build, provides excellent results for its size and will let almost anyone who claims that they 'lack space for antennas' effectively get on air.

Reference:

ARRL Antenna Handbook 18th Edition, 1997, p5-11ff

ar

Those bargain portable generators

Steve Mahony VK5AIM,
19 Kentish Road,
Elizabeth Downs, SA 5113.

Small 240 V ac portable generators are now available from some stores around Australia at bargain prices.

These small portable 240 V ac generators were very attractive to amateur radio operators. For those of us who delight in Field Days, portable radio trips and even WICEN activities, they look to be able to solve the power supply problems. Rated at 240 V ac 50 cycles, 750 watt and higher, they could run the average 100 W SSB HF and VHF equipment easily. The price being from $100 makes them attractive and affordable to AR budgets.

Some people queried the quality, with them being manufactured in China. How long would they last? For the tradesman using the unit 7 days a week, 50 weeks a year, No! For the average Amateur using the unit for Field Days, portable trips and supplying the home station during power failures, I would expect them to last for many years, with proper maintainence.

The generators come in many brand names, some well known, others just a name. Visual comparisons and reading the info on the cartons indicate that they are all alike, with some minor differences and prices.

In QSOs with other amateurs, I confirmed that many of these generators have been purchased, With the amateurs' ability to modify, improve and understand the workings of their equipment it would be good to know of these improvements and modifications.

How about it fellow amateurs?

A well known VK5 amateur who was employed most of his working life by the SA Power authorities bought one of these generators when he saw them at this price, "To good to miss' was his comment. He tested the unit thoroughly and could find no fault with it. 240 V ac +/- with no load, 50 cycles +/- a few cycles. The power available from the 750 W machine was 550 watts continuous and it would peak at the rated 750 watts. The ac wave shape was near sinuous with a few spikes, as observed on a CRO. It ran a load of lights OK and he believed it would run OK into the average mains transformer of a 240 V to 13 V dc PSU. As regards running into a switch mode PSU he did not know how it would perform. The 14 V dc is rated at 8 A, thermally protected, as is the 240 V ac. The dc is available at a standard 'T' type socket. It is suggested to be used for charging 12 V batteries.

Being a two-stroke engine it requires oil mixed in with the petrol. Unfortunately the mix is different from the usual lawn mower mix of 25:1. The generator requires a 50:1 mix. This means another container for this fuel mixture, Inconvenient but no great hardship. I am told the 50:1 mixture is for the new environmental /pollution standards.

My 750 W generator in operation

I ran my IC-735 transceiver via standard YAESU FP-707 PSU, on 80 m for a Group Net one evening. None of the other stations could tell the difference. I did run a 60 W 240 V incandescent lamp at the same time.

With the transceiver only on receive you could see a flicker in the lamp and hear the motor fourstroke as you went into transmit and spoke into the mike. You could see the lamp dim slightly and hear the motor settle down to a steady purr, on pauses in speech the motor changed note and the lamp flickered.

The generator was on the end of an extension cable 8 m away. With no signal in the receiver some ignition noise was audible. The Noise Blanker removed this. I am quite confident in running my AR station at home or portable on the generator. I ran 3 different electric drills of about 400 to 500 watts each in turn, on the generator. An Angle Grinder and a Jig Saw of similar wattages ran as well. The motor growled as you started the drill etc up but picked up and ran the tool quite OK

I believe Colwyn VK5UE ran a small evaporative air conditioner and the TV /VCR off his generator quite successfully when we had a power failure in Elizabeth. I tried a small 14 inch, kitchen TV on the generator. It worked OK. A bit more load, say a 60 W lamp would load the unit up and keep the load constant I

can visualize in the event of a major power failure, my wife asking me to get the generator out to run the TV, so she could still watch her "soapies".

Some minor improvements I have made to my generator

1 A proper earth terminal, green colour, to enable an earth wire to be easily connected to the chassis.

2- As the unit weighs 20 kg it can be lifted with care by one person. I made up a temporary wheeled cart with 4 ex chair castors fitted to a piece of thick chipboard and a pull along rope. A proper metal-framed trolley with respectable sized wheels would make it easier to move about. Any suggestions!

3 The single handle on the top of the fuel tank is only suitable for one person to lift it. I made a temporary 2 person handle with a piece of broom stick, slightly longer than the tank, and fastened it to the top of the handle with two stout screw type hose clamps. It works OK and two people can share the load lifting it into the back of a vehicle.

Any suggested improvements would be welcomed.

So to paraphrase the song. "The bush is alive with the sound of generators". What about it fellows? Hear you on the airwaves with the purr of a generator in the background for the next Field Day.

I write this article because on Fathers Day last, I was told by my wife and son to sit down at the kitchen table, make room on the table for a large parcel and close my eyes! There was the sound of someone carrying a heavy object and placing it on the table. 'Open your eyes" said the pair of them. This I did and there was this blue and white package containing a 240 V, ac, Generator. My Fathers Day present. I was delighted. There is a pun in that line!! Thank you again John.

ar

News from...

WICEN Victoria

WICEN (Vic) has completed another successful event with the Red Cross Murray River Canoe Marathon held between Boxing Day and New Year's Eve.

Approx 250 canoes were on the water over the entire event, with over 750 individual canoeists involved. Many were from various private schools and formed relay groups. This year, a "half marathon" was run which involved up to 25 canoes. The half marathon started at the second check point (Bravo) and went through to the finish. This section will be repeated next year, with the intention of attracting those canoeists who would like to participate, but who might find the overall length of 404 km a bit daunting.

This year we were a little short on numbers of amateur radio operators, however at the last minute we managed to successfully fill every check point. In total 23 amateurs were in attendance at various times, plus several helpers and observers.

New to the Murray was Ian Morris VK3DVO and from comments received he really enjoyed the stint. Also welcomed was Lloyd Morrissey harmonic of John Morrissey VK3ZRX. Lloyd was utilised as a "second operator" under supervision at various points, and he performed with excellence.

Our newest amateur was Kate Perry VK3HCL, who received her amateur licence only a few weeks previously. Kate is a most experienced WICEN operator, and with parents Ron VK3ECV and Marlene VK3JAW looking over her shoulder we had a real enthusiastic operator working for us. Kate was given mobile tasks on the safety boats, such as the "Screen" boat which heads downstream first to clear the river of other vessels, and the Water Safety Officer (WSO) boat which ends the chase of the canoes, and ensures no canoe has been lost or strayed.

This year, due to flooding of the river near Tocumwal, the first day of the event was repeated, that is canoes did the journey from Yarrawonga to Tocumwal twice, making the third day running as planned from Picnic Point to Echuca.

We camped two nights at Tocumwal, two nights at Echuca, and one night at Cohuna. Excellent meals were provided at modest cost by the Red Cross Catering Service whilst we were camping, and this saved us having to take along food supplies.

New Year's Eve was celebrated at Swan Hill where WICEN operators relaxed at the Pental Island Caravan Park. The weather was kind to us this year, and most of the WICEN camp wore heavier than normal clothes, breaking out into shorts and lighter sporting apparel on the last day Cohuna to Swan Hill, when the temperature reached 35 Celsius.

This year we utilised 80 metres almost exclusively, as we found that the early morning transmissions with 40 metres (which is our normal preferred operating frequency) were unreliable, even over the relatively short distances involved. However, conditions overall on 80 m were excellent both in the early morning and afternoon sessions, and in conjunction with our 2 metre frequencies used by the boats, we achieved a very high quality of radio communication, which was readily acknowledged by the Red Cross and Marathon coordinators.

It was during the third day of the marathon that we heard the news of the terrible devastation and loss of life caused by the tsunami. All volunteers were affected in some way, and on New Year's Eve, members of the administration team from the Land Rover Owners Club (LROC) took around the hat, and achieved donations of $2,800 which was handed to the Red Cross to assist with recovery work in the affected areas.

All in all a most successful 'Murray Marathon" was achieved, and we thank the Officers in Charge, Russell Park VK3FIN, and Bruce Bathols VK3UV for their untiring efforts in getting the group together and co-ordination of all checkpoints and stations.

We now look forward to Murray Marathon 2005.

Enquiries regarding WICEN Victoria may be directed to Bruce Bathols, VK3UV. Please email Bruce vk3uv@wia.org.au or phone 0418 386 030

Technical Abstracts

Peter Gibson VK3AZL

Remote dc power through your coax

The practice of remotely powering such items as masthead preamplifiers and satellite front ends via the coaxial cable has been common for many years. The practice has also been used in amateur service over the years.

However, an article by Phil Salas, AD5X in QST for July, 2004 reminds us that these techniques are useful for such purposes as remote operation of modern auto antenna tuners or antenna switching relays. As Phil is a keen portable operator who had just purchased an auto tuner to add to his equipment collection, the prospect of having to run even more wires between antenna and rig caused him to look for a better solution.

The system required a means of injecting the dc onto the coax at one end, extracting it at the other end, whilst keeping the rf and dc apart.

Injecting dc onto a coax requires that there be good isolation between the signal and the dc source, since the dc source will look like a ground, or short to the rf signal on the coax. Also, most dc supplies would not respond well to having large amounts of rf being fed into them. Therefore, you need a couple of dc blocking capacitors that have low impedance at rf and a good inductor that has high impedance at rf. The inductor must also be capable of handling the dc current required. The circuit of the dc injection module is shown in Figure 1 and the extraction module is shown in Figure 2.

The inductor used was a solenoid style with two layers of winding giving an inductance of 100 uH and a current capacity of 2 amps. When tested across the frequency range of interest, the inductor showed a series resonance at 11 MHz. As it was considered that 100 µH was more inductance than really needed, one layer of 25 turns was removed, giving a single layer winding of 25 µH. This gives sufficient isolation for 3.5 MHz and up and should even be adequate for 1.8 MHz. The capacitors used in this design for C1 and C3 are 500 V disc ceramics. The author obviously considers they are adequate for use with an IC706 transceiver. If it is planned to operate on 1.8 MHz, it may be useful to parallel a pair of capacitors at C1 and C3.

Some system protection is provided by the use of diodes, zeners and fuses, although these will obviously not be totally successful against a lightning strike or near strike.

The rest of the article is devoted to various methods of construction for both portable and fixed station installations as well as methods of testing and commissioning.

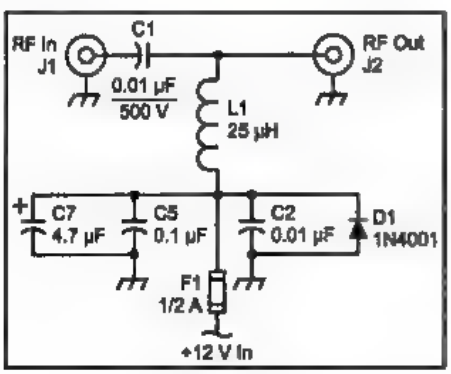

Figure 1 – The dc injection (send) module

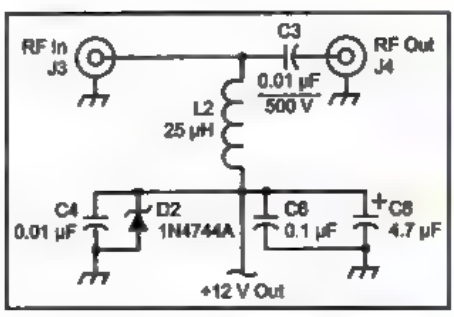

Figure 2 – The dc recovery (output) module.

Antenna mounts for all occasions

Have you ever needed to temporarily mount an antenna on a vehicle that does not readily lend itself to such operations?

In QST for November 2004, Pete Norloff, KG4OJT, and Tom Azlin, N4ZPT relate their experiences in solving such a problem when they needed to operate from a wide variety of vehicles of unknown type, being used in a civil defence exercise.

The requirement was to allow the use of VHF radios in vehicles ranging from school buses, small limo buses to large charter buses. One common factor in many of these types of vehicles is that the bodies are largely made of fibreglass, aluminium or other similar materials. Mag mounts will not stick to such materials and they do not provide a good ground plane.

After some thought, they decided to use suction cup mounts, in particular, the type that are used for lifting raised floor tiles or carrying sheets of glass. This lifter has two large (100 mm) suction cups with attach/release levers; connected by a handle.

A variety of antenna mounts and styles can be made from this basic support. If a flat plate of steel is bolted to the handle, a standard magnetic mount can be used. The drawing for this is shown in Figure 3 and a picture of one such unit in use is shown in Figure 4. Note that all of the horizontally mounted antennas have a 'rat tail' of several quarter wave wires attached to provide a ground plane of sorts.

If an L bracket is bolted to the handle, a bolt-on antenna can be mounted. If two sets of holes are drilled into the handle at right angles, horizontal or vertical mounting can be accommodated. In both of the above cases, the suction mount is mounted horizontally.

If the suction mount is attached vertically, then extension poles can be attached to support ground planes above the roof line. If the handle is cut

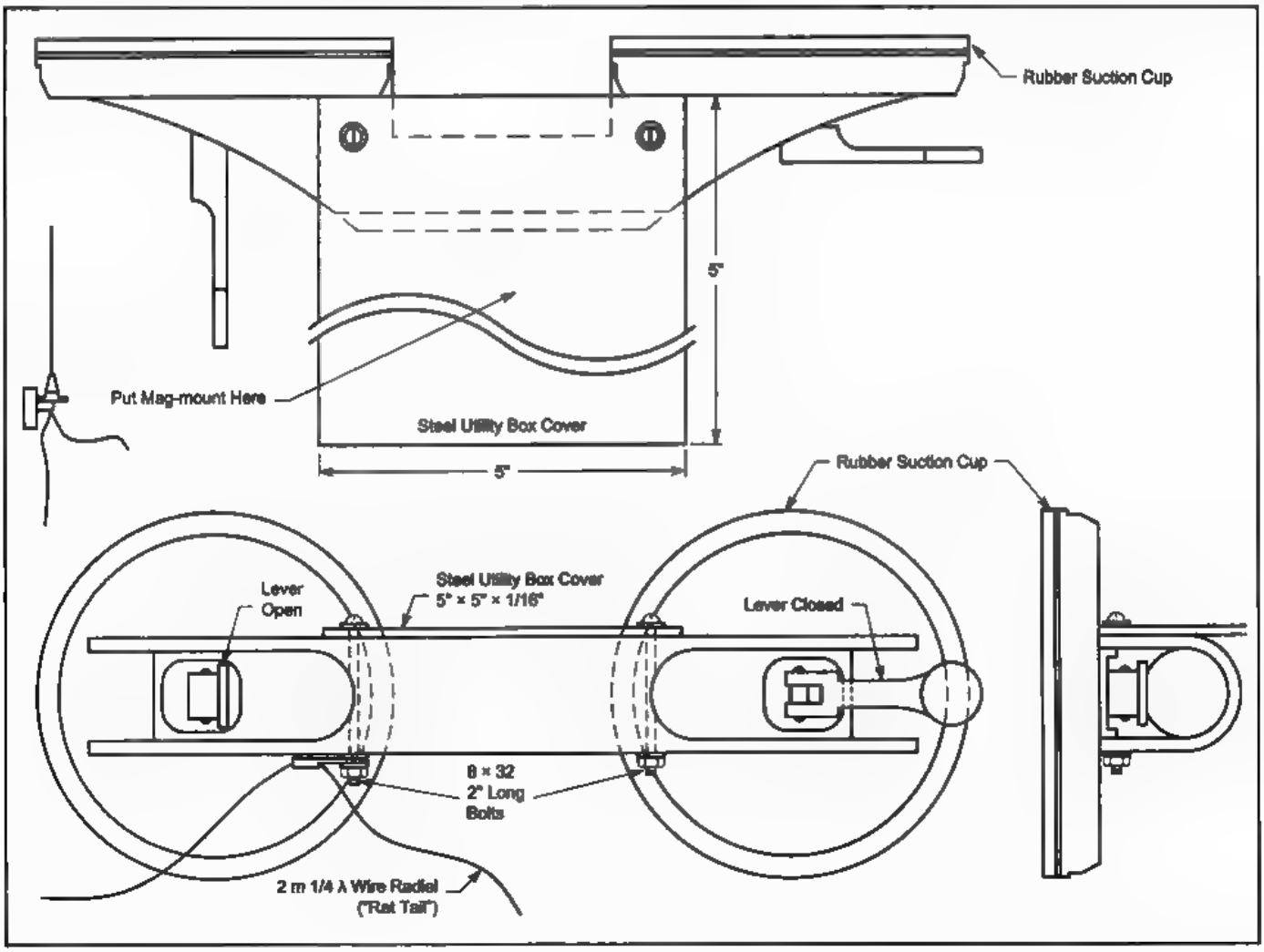

Figure 3 – Detail of the Mag Mount assembly

in half, the two suction cups can be spaced further apart with the joining rod holding them together.

Whilst this type of mount will stick to most windows or surfaces with little curvature, they can not be attached to compound curved surfaces such as many car front and back windows. However, most vehicles should have at least one suitable surface where this mount will fit.

The measured VSWR on most of the antennas was between 1.3-1.5:1 with the 'rat tails'. Adding the 'rat tails' lowered the VSWR to these figures from 1.6-1.7:1.

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Figure 4 – Suction fitting and Mag mount on bus window

ERRATA

Amendments to Q meter article

(AR Jan/Feb 05)

Page 6: circuit diagram
IC1 is a TL081- see component overlay

Page 9: column 1
Circuit voltages (no oscillation) "Q5 base and emitter 0V" should read "Q5 emitter 0V"

Page 10: Component Overlay
Central group of capacitors should be labelled 470pF, not 4n7

Jim VK5JST

Circuit board manufacture

In AR July 03 VK2COX sought a simple computer program for the design of printed circuit boards. There is none better than Easytrax (which includes Easyplot for printing/plotting the finished design). Easytrax is obsolete in the commercial world but is still excellent for amateur use; it has the added attraction of being freely available at zero cost.

Like VK2COX I have tried other programs; I have Eagle and Vectron and, whilst I'm sure they are excellent tools, they are complex and not intuitive. Easytrax wins on both counts; it runs in DOS (no mouse) and it uses keystrokes, which are highly intuitive. For example, to Place a Track you hit PT, to Delete a Pad you hit DP and so on.

The best source for Easytrax is at RCS Radio in Sydney (*www.cia.com.au/rcsradio*). As well as free download of the program plus enhancements (or a floppy disc at nominal charge) you will find Bob Barnes a wonderful source of information and advice (and a delightful man).

This advice may, however, only partly solve VK2COX's problem. The usual photographic techniques for board production are not well suited to occasional one-off production. These techniques require darkroom facilities and the use of chemicals, which have a short storage life; this can be accommodated by those amateurs who are also keen photographers but most of us find converting the laundry to a darkroom a fearful pain.

I produce good-quality boards by plotting from Easytrax/Easyplot directly to the copper stock then etching as usual. This procedure is used to produce normal through-hole boards, surface-mount boards and microstrip boards.

Once laid-out in Easytrax (often very time-consuming and always an intellectual challenge) a board takes about half-an-hour to plot and etch. A mistake or a design change? Edit the design (saved in Easytrax) and plot/etch again; doesn't take very long.

Small plotters are now obsolete, replaced by laser printers. I paid $50 for my first plotter, a HP7550, but was later given two HP7475's (one virtually unused, in original packing with all manuals) for nothing; these are smaller than the 7550 and do the same job; their advantage is that they require less bench space.

Easytrax contains drivers for other brands of plotter, such as Roland, and these should be just as easy to acquire and get going.

I am a recognised computer-illiterate, yet I managed to get my system going; anyone can do it!

73, Kerry Power VK2TIL

Homebrew suggestion

A thought. Since my interest in homebrewing is more in the design and in getting the item working than in constructing it or in actually possessing it later, here is a suggestion for readers of "Amateur Radio" magazine. Think of something that you'd like to build, and write to me. If it seems the sort of thing that seems within my powers to design, I will send you a design including a printed circuit board pattern, and hopefully a drawing for the location of the holes in the cabinet, so that it's all easy to put together. Well, I daresay nothing ever works first time, so if you can't get it to go, post it to me; I will poke around with my fancy oscilloscope and get it going and then mail it back to you. Then there might be an article in "Amateur Radio" magazine out of it all (that depends on the Editor, of course) and naturally you will be acknowledged in print.

Any takers? Write to me at GPO Box 789, Melbourne, 3001.

Joe Rotenberg VK3BBN

PS: Only for private individuals for their own use of course. Not for commercial organisations for profit.

Editor's Note: *Publication of this offer is not an endorsement of the offer*

The views expressed in the *Over to you* column are those of the authors, and do not necessarily reflect the official policy of the Wireless Institute of Australia.

Recruiting to AR: making it interesting

I first wrote to AR magazine in October 2002, Over To You, "Why Amateur Radio is dying".

Since then I have (recently) sat my NAOCP and AOCP exams (4/12/04) with NERG and joined the NERG as well. (Awaiting results still)

After reading the 'Linton-Harrison' report (and reading the WIA sites and AR magazine for past two years) I realised that if we don't take action to encourage AR then it could be lost to commercial interests. And as a (hopefully) new operator, I too should, and would like to, contribute more than just 'operating my equipment' to a community to which I will soon belong and what I see as a fascinating hobby.

In my two and a half years of 'reading the mail' on the amateur bands I have noticed that most conversations are between older guys with very different ideas, issues and opinions and families from today's "MTV" generation, as we are called, and many young people are 'put off' by this. Many of today's young people do have the time for AR, and the money as they (including myself) still live at home, are single, but working, meaning that other than work I have little commitments and plenty of spare time to pursue my interests, as it seems rare for guys (and girls) to be getting married and settling down until they are in their mid 30's, when they then become cash & time poor.

While I don't agree with some comments I've received from my cb'ing friends, many young people who I've "tested" listening in say 'it's boring listening to a couple of old blokes talk about nothing" (Personally I find listening to the older guys has helped me learn a heck of a lot about AR, how to use it properly and just how one can do so much with AR). Unfortunately, the young guys of today see this as boring and I know of several CB operators (whom I mentioned in my 2002 article) who agree.

Since 2002, I have been visiting all my old CB friends, encouraging them to get back on air. Once one old mate came back on air, so did another, then another and HF CB ch 18 AM in Greensborough is back to the way it was back in the late 80s and early 90s, with everyone from my high school CB days back on the air once again with many of us venturing into UHF CB now as well. Many of these guys are now considering getting an amateur licence next year when the new foundation licence conditions are released.

This also proves to me that activity breeds activity and I believe if we can get more young operators on air, they will in turn encourage other youngsters to get on the air. Otherwise, when I am old, who will be left for me to talk to on the bands, in say 2050?

After a post to the aus.radio.amateur newsgroups I was pointed to a NZ site where a group of young hams had formed a 'young operators' net which was working quite well from all accounts to date. (http://yanz.nzart.org.nz/) And in ZL land the NZART is fully supporting this young operator's group, even using their (NZART's) hosting space for their site! http://www.nzart.org.nz and scroll to bottom of page, far right logo/link.

I, along with some other young operators have decided to start a VK Young Amateur Operators net/group for any amateur aged 10 (or less) to about 30 years old at http://www.geocities.com/vk_ya/ and a mailing list for this group at http://groups.yahoo.com/group/vk_ya. We hope to be holding our first on air net in early 2005, using both HF and IRLP modes/bands. (For HF we think the 160m band in AM mode would be best to allow new, potential amateurs to tune in with modified standard AM radios).

It would be greatly appreciated if you could publicise this idea and the links in next year's AR magazine and somewhere in the links section of the WIA website. Any publicity, I believe would help encourage new amateurs to join the ranks next year, and with the new licence conditions and exam methods etc due next year, what better time to start a group for young VK amateurs and potential young amateurs? It appears to have been a great success in New Zealand.

I will be joining WIA as soon as I have exam results/callsign. Also willing to be guided as to what I should put on our website etc etc so I don't step on anyone's toes etc etc.

I also provide a re-transmission of the WIA news at 11am & 8pm every Sunday on UHF CB Ch 18, as many of my CB friends who are considering being hams like to listen to the weekly bulletins but don't have scanners etc that can listen to the WIA broadcast on amateur bands. (There's no problem with doing that is there with you guys at WIA?-ACA said it was OK.) You can let potential amateurs who are yet to have any amateur gear or wide range rx'ers know that in Melbourne the WIA news can be heard on Ch 18 UHF every Sunday at the WIA's normal broadcast times. (Would prefer a repeater channel but no repeater owner would agree to it)

And if you're looking for a contributor for AR or anything else that I can do to help AR down under, again I'm willing to help, please let me know. I'm qualified in business management and have some past journalism experience (Leader newspapers, DV News, Whittlesea Post, Preston Post Times & Heidelberg) and currently work as a self-employed bricklayer/paver/building labourer, if these skills are of any use to the AR community.

PS. I said in 2002 that it would only be a matter of time before DSE stopped selling Yaesu gear and look what happened there!

Ashley Geelan
ageelan@bigpond.com
VK3??? (I hope)

The views expressed in the *Over to you* column are those of the authors, and do not necessarily reflect the official policy of the Wireless Institute of Australia.

Times of change for the Wireless Institute of Australia

James Mclachlan

As we moved to a National WIA, the hard work and many meetings have at times been very difficult for the team. There have been comments as to where we came from and why we formed, the document below is from the SA and NT Division archives. It will take us back to a similar time when the Australian WIA was in its formative years. The objects to foster our hobby certainly give us a real sense of history.

WIRELESS INSTITUTE

May 1919

Wireless Institutes are now being formed in all the states, and when they are completed it is expected that they will be linked into one Commonwealth organisation, in order to work for the common benefit of all experimenters and private users of wireless apparatus.

State Reports

NEW SOUTH WALES

Owing to the epidemic of influenza the general meeting called for April 4th has been postponed. The meeting will be held as early as circumstances permit. Intending members are invited to communicate with the acting Secretary, Mr Malcolm Perry, Box 2 King Street Post office, Sydney.

SOUTH AUSTRALIA

All interested in the formation of an institute in South Australia are invited to communicate as early as possible with Mr C Ames, 59 Cariton Parade, Torrensville, SA

TASMANIA

All interested in the formation of an institute in Tasmania are invited to communicate with Mr V McDonald Brame, 71 Hill Street, West Hobart

VICTORIA

An inaugural meeting of the Wireless Institute of Victorian was held in Melbourne on April 1st at the Marconi School of wireless, 422 Little Collins Street.

The meeting had been convened by Mr. W. King-Witt at the request of the Hon Secretary of the Wireless Institute of New South Wales (Mr. Malcolm Perry) also at the request of many radio workers returned from active service, and of others desirous of recommencing experimental work.

The chairman, Mr. E.T. Fisk, managing director of Amalgamated Wireless (Australia) Ltd., read extracts from his address at a similar meeting recently held in Sydney; he also read correspondence which had been passed between the Wireless Institute of New South Wales and the acting Minster for Navy.

A provisional committee, consisting of Messrs. Conry, Nightingal, Tatham and King-Witt, was appointed for the purpose of framing, for the new Institute, a set of rules and regulations, to be later considered at a public meeting of wireless amateurs.

QUEENSLAND

The first meeting of the Queensland Wireless Institute, convened by the honory secretary and treasurer, Mr. S. V. Colville, was held on February 26, at the rooms of the Brisbane Chamber of Manufactures.

The objects of the Institute, for submission to the inaugural meeting, were read by the chairman, Mr. H. Cornwell, these being as follows:-

(1) The name of the institute shall be "The Queensland Wireless Institute."

(2) The objects for establishing the institute are:

(a) to bring into contact all persons interested in the study of electricity, especially as applied to wireless research, telegraphy and telephony:

(b) To arrange a meeting place to facilitate study, reading , discussion questions arising from experiments, and the exchange of ideas generally:

(c) To distribute written matter on the proceedings of all demonstrative. Instructional and theoretical lectures given for the practical benefit of country members:

(d) To form a library of books works and periodicals on wireless, both experimental and commercially, and to encourage the study thereof.

(e) To endeavour to increase the individual knowledge of members by every possible means in the various fields of operation.

An inaugural meeting of the above Institute was held on March 1, in the rooms of the Brisbane Chamber of Commerce.

The office of patron was accepted by Professor Hawker, BA. BE., A.M.I.CE., principal of the Queensland University, and of president by Mr. R. A. Wearne, BA. The following were elected vice presidents of the institute:-Mr. S. H. Smith, Mechanical branch, GPO., Brisbane; Mr. H. Cornwell, manager of the Edison Swan Electric Co., Ltd.; Mr. A. G. Jackson, A.I.R.E.; of the Synchronome Electric Co., and R. A. Blackboro, RAN.

Messrs. E. M. Jack, W. J. Monkhouse, D. J. Garland, H. Priest and J. C. Price, were elected as members of council.

The proposed rules of the Institute were read and adopted en bloc, the proceedings terminated at 9.30 pm with a vote of thanks to the chairman.

May 1919.

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AM: 0.5-0.9 uV (10 dB SINAD @ 6 KHz bandwidth)
FM: 0.35-0.6 uV (12 dB SINAD @ 15 KHz bandwidth)
Selectivity: 35 built-in filters SSB/CW: 200-3000 Hz AM: 400-6000 Hz FM: 15 KHz
Image rejection: 80 dB **Voltage:** 13.8 VDC
Current drain: RX: 950-? mA
TX: Max 6 A
Impedance: 50 ohms SO-239
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100 memories. Scanning. CTCSS encoder
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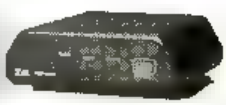
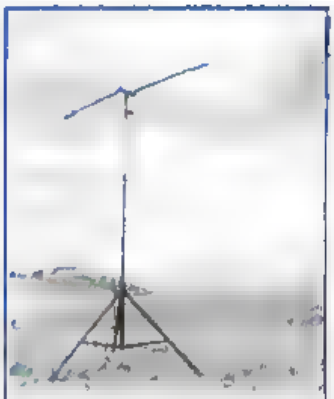


Z100 TUNER



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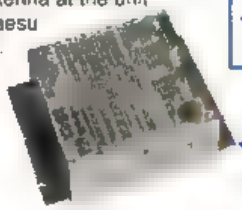

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News from...

VK2

Compiled by Tim Mills VK2ZTM.

The NSW Division has adopted the trading name of *Amateur Radio, New South Wales [BN98112045]* to carry out the day to day operations. This came into effect at the 21st January Council meeting.

The Annual General Meeting of the NSW Division of the WIA, for the year 2004, will be held at Amateur Radio House, 109 Wigram Street, Parramatta at 11 am, on Saturday 16th April. The close of nominations and agenda items occurred a few days ago on the 5th. In a process approved at the 2004 AGM, members may have electronic delivery of the Annual Report and Financial Statements. Any member with access to e-mail facilities is invited to send an e-mail to the Parramatta office - vk2wi@wiansw.org.au - specifically requesting electronic delivery. To meet production deadlines please advise by 5th March. This action will assist with savings in printing and postal costs. Anyone not taking up this offer will receive the relevant material by mail. To keep informed on aspects of the forthcoming AGM members should listen to the VK2WI Sunday news session. To take part in the AGM, former members of the NSW Division must be financial members of *Amateur Radio, New South Wales*. If you were a member of the NSW Division and your renewal fell due between 1st July 2004 and 16th April 2005 you will need to have renewed your membership with *Amateur Radio, New South Wales*. If your renewal falls due from 17th April 2005 to 30th June 2005, you will be deemed to be a member of AR NSW for the purpose of the AGM. Naturally we invite you to renew membership with AR NSW as well the National WIA.

The next exam being conducted at Parramatta will be on Sunday 3rd April. The closing date for applications is 22nd March. Apply to the office or check out the web site for an application form.

Chris VK2QV has taken over as Webmaster for the AR NSW site. There has been some change and updating of the material. Check it out at http://www.wiansw.org.au. Chris advises that there may be changes to some of our email addresses. For the moment email can go via vk2wi@ozemail.com.au as well as the other address vk2wi@wiansw.org.au Your feedback is most welcome. One of the sites is the Bookshop. Check out the latest stock. Contact with the Parramatta office, other than by email, is telephone 02 9689 2417. Fax 02 9633 1525. Mail to PO. Box 9432, Harris Park NSW 2150 or personal visit on Tuesday, Thursday and Friday, 11 am to 2 pm.

As advised in the February notes, work has been carried out at the VK2WI Dural site. The 30 metre tower was stripped of most existing antennas and their co-ax cables. A new set of antennas and co-ax went up in their place. There is still an antenna at the top to be changed and a couple to be added to restore the full system. At the same time several trees, which had encroached into the HF antenna space, were adjusted. Also adjusted were some which were close to buildings and structures. To provide a balance in the vegetation department, several trees have been added to the property perimeter.

This month will be the next Trash and Treasure and Home Brew activities at Parramatta. The date will be advised on the VK2WI news, as the normal date is Easter Sunday. Also over Easter will be the Urunga Convention, an annual event since 1948.

A request to clubs and groups. The listing of your repeaters may need updating. For example, do you still have a packet system? If not, this may still be shown on the WIA data base. Email details to Parramatta.

The second quarter roster for VK2WI will be compiled soon. Please contact John VK2JJV for those dates you desire. If you would like to join the roster we would be pleased to hear from you. In this quarter we welcome a new voice, that of Darren Geyer, who has come to help us out.

73 - Tim VK2ZTM.

VK4 – Qnews

From Alistair Elrick VK4MV

Dates to mark in the Diary

May 7 BARCFEST. The location will be Mount Gravatt Bowls Club 1873 Logan Road Upper Mount Gravatt.

April 30 / May 1 Claireview Amateur Radio Weekend

Internet Linking of Repeaters

The CBRS is pleased to announce a trial of EchoLink in connection with its 70cm repeater VK4RBR situated atop the Moreton College of TAFE, Mt Gravatt. The repeater has useful coverage of Brisbane and surrounds and operates on 438.275 MHz with a 91.5 tone. The link radio is equipped with a tone encoder and so remote connections will not need to provide the tone. The link, VK4PKT-R (EchoLink node number 227492) is operational all hours and with 3 hams on the premises will be monitored closely for evaluation. As with linking protocols, allow a gap of AT LEAST 2.5 seconds after any transmission. This is VERY important so please go slow on the key. All and any feedback should be directed by packet to the SysOp Ari, vk4jew@vk4wie.#bne.qld.aus.oc or in case of emergency by phone on 04 1053 3707. (VK4JEW / VK4PKT)

Targeting Seniors for AR

The Bayside District Amateur Radio Society Inc were invited to participate in the U3A (University of the Third Age) sign-on day which took place on Friday the 21st of January at the Redlands Community Centre. On Friday morning, U3A personnel had setup "Sign-On" tables for each of the courses available to Seniors. QNews is not aware of Ham Radio Courses being

available, but Bayside members on site managed a contact with Robert VA3RCM in Ontario Canada via IRLP and several HF contacts were made with ZL stations. Bayside member Ken Fuller elicited names and phone numbers from at least 20 interested passers-by. The general opinion was that Bayside successfully showcased Amateur Radio to the Redlands public. Bayside Club are holding their Annual General Meeting on Monday 7th March President Paddy will be stepping down this year, so hopefully all will get along that March 7th to help out.

RADAR/Rocky Club

If you find the Rockhampton 2m Repeater 146.700 MHz a little "deaf", (seems to happen in wet weather), swap to their 70cm repeater on 438.225. Clive, VK4ACC believes investigation will take place ASAP.

From the QAC with NEWS

As we heard in the recent National News, Ewan McLeod, VK4ERM, has been appointed WIA Vice President, and as he is presently a Director of the WIA, Ewan has indicated to the Board that he will resign from the Queensland Advisory Committee.

Lighthouse Weekend – any takers?

Interested in activating Cape Cleveland Light for the Lighthouse Weekend in August? At a great DX location on HF and VHF plus some terrific ambience to make operating a pleasure! Got you interested? Contact Steve VK4JUS to put your name down on the expeditioners list! Don't wait until the last minute though, forward planning is taking place NOW!

From the TARC

Date claimer for North Queensland Amateur Radio Convention 2005 That premier event on the worldwide Amateur Radio calendar is taking place again in 2005. The North Queensland Amateur Radio Convention will be happening at the Douglas Campus of James Cook University plus other event centres from Friday September 16th to Sunday September 18th. Mark the date down now - event particulars and registration info will be released in March.

New night for the Microwave Net

The TARC Microwave Net is moving to a new day but at the same time from 9 pm Mondays on the VK4RAT 70 cm and 23 cm repeaters. It's your chance to work millimetrically with like-minded experimenters, discuss the latest discovery or problem and generally fine tune your apparatus on-air. So that's theTARCinc Microwave Net, starting February 14th 2005 at 9pm - Be There! (Gavin VK4ZZ with info supplied by Don VK4MC)

RAT goes FLAT

The VK4RAT VHF and UHF Voice Repeaters were off-air from about 2 pm Jan 25th until 2 pm Jan 26th due to a battery charger failure. The repeaters are back on-air thanks to switch over to a standby charger. The cause of the fault in the main charger is interesting - by now you would expect equipment manufacturers to take heed of field service reports and stop using the contact cement that, upon ageing turns conductive and absorbs moisture! That's right, they are still using that goop to over-stabilise large electrolytic capacitors in the event the devices are used in fast decelerating vehicles !

The charger in question had only been in service for 3 years.

When will they ever learn? Something to take note of for everyone interested in maintenance or construction, use appropriate sealants and adhesives on your work.

VK6

Will McGhie VK6UU
will2@linet.net.au
08 9291 7165

Change of responsibility

With the winding up of the VK6 WIA, work continues to sort out the fine detail. A number of responsibilities are in the process of discussion with VK6's main club WARG, (West Australian Repeater Group). WARG was formed in the 1970s and has been one of the most successful and largest supported clubs. WARG appears to have the capacity to take over some of the roles formally administered by the VK6 WIA. Offers have been made by WARG to take on the Sunday morning broadcast, the international HF beacon VK6RBP, responsibility for the provision of Amateur Radio courses and the VHF Morse Beacon.

The winding up VK6 WIA council continues to meet each 1st Tuesday of the month. At February's meeting outstanding payments were made of about $800 leaving $2,000. Hopefully the retained funds will see the council through this transition phase.

It was reported at this meeting that the 3 major clubs in the Perth area have about the following membership.

West Australian Repeater Group 150,
Northern Corridor Radio Group 40,
VHF Group 43.

Minutes from way back

Last month's VK6 notes were in part about the early beginnings of Radio clubs in VK6 and how the VK6 WIA came into existence in 1919, as told in the original minutes. Following on from this in brief, the years from 1919 to 1921.

The next meeting of the newly named club (Wireless Institute of Australia VK6 Division) was on 20th November 1919 and is the first typed minutes in the minute book. Correspondence from the N.S.W. Wireless Institute of Australia was read and the Secretary

was instructed to "communicate with the N.S.W. section for the latest copy of their rules." It appears that The Wireless Institute was not an organization, as we know it. The various state based clubs were just that, stand alone but moving towards a common name and formulating a set of rules that best served the new hobby. One other point of interest from the minutes of this meeting was "to communicate with the Naval Authorities Fremantle asking for their attitude in regard to the recognition of the local institute in matter of issuing licences." As there has been no mention of any form of licensing so far in the minutes I gather licences were yet to come. Also contained within these minutes was the appointment of a technical advisor (Mr Gray) to report on the direction of the use of valves.

At the next meeting on the 18th of December 1919 a letter was received from the Naval Department re licences and after a discussion it was decided to submit 3 or 4 applications for permits.

At the first meeting for 1920 on 11th February at the science lecture room Perth Boys School, "Mr McKail reported he interviewed the caretaker and concluded that the cost of electric lighting per meeting would be 6d and the cost of extra cleaning 2/6 per meeting."

At the meeting on 26th February 1920 it was moved and passed "that forms for application for licence be procured and that members apply for same through the Institute." The following meeting on 4th March 1920 it was moved "that applications for licence be forwarded to the Naval department." The Naval department replied "issue of temporary licences" and the letter was read and explained at the next meeting on 25th March 1920.

Meetings throughout 1920 were every month with a letter from the Sydney Division with a list of calls read to the meeting. Also a badge and emblem on flag design was sort. Lectures continued throughout the year with topics being electrical units, induction and capacity, and telephone receivers as examples.

The first meeting for 1921 made the first mention of Central Executive. The motion reads, "That Central Executive be advised re transmitting licences, and to ask them what steps have been taken to procure same." Also at the same meeting a motion was passed "That each visitor be allowed to attend only one meeting per annum."

The April meeting is worth reproducing in part.

"Minutes of General meeting of the Wireless Institute held at Stott's College on 27/4/21 at 8 pm. Mr Coxon presided.

There was a very small attendance of members & several visitors were present, including Mr Rossiter from the Observatory.

A letter from Lieut P. Polinane a Russian W/T Engineer at Constantinople was received applying for a position in the Institute. The secretary was instructed to reply stating the functions of the Wireless Institute in W.A. & that no vacancies existed in W.A. branch at the present time for a Wireless Engineer.

Mr Coxon then gave his lecture on "Valves" with a demonstration. It was very interesting from start to finish, & the W.A. Division can be proud to have such a practical member as Mr Coxon. The demonstration was particularly interesting in view of fact that the oscillations could be heard in any part of the room with a pair of phones."

For the moment the brief description of the minutes from 1919 to 1921 comes to an end for this article. The first minute book continues to 1924 and time permitting, more next month.

Radio enthusiasts formed Western Australia's first radio club and from this the beginnings of the Western Australian Wireless Institute. Perhaps some readers may be able to add to the history as I have read it from the minutes. The closest I came to knowing any of these early amateurs was Wally Coxon who was active on 2 metres FM some 30 years ago. They have passed on but the history is there in the first minute book. However history is of no use if it is not available for all to read. I have scanned in the entire minute book, all 168 pages, and plan to make them available on the Internet.

VK7

Justin Giles-Clark VK7TW
Email: vk7tw@wia.org.au
Regional Web Site: www.reast.asn.au

It's official – More VK7s are using HF!

The first of January 2004 saw the Morse requirement for amateur licensing dropped and with this, many more amateur gained access to the HF bands. An analysis of the VK7WI regional callback statistics has revealed that the licence change has certainly seen an increase in the usage of HF (80, 40 and 20 m) for at least the VK7WI broadcast!

For the last 6 months of 2003 the average HF callbacks were 18.7 and for all of 2003 it was an average of 20 callbacks.

For the first 6 months of 2004 the average HF callbacks were 36.1 and for all of 2004 it had dropped back to an average of 32 callbacks. That's double the number of HF callbacks!

The same comparison performed on 2 and 6 m VK7 repeaters and UHF and HF CB callbacks reveals these did not change to anywhere near the same extent over that period. The above analysis provides some hard evidence that the change to licensing has resulted in greater utilisation of HF for at least the broadcasts!

VK7RAF Update

VK7RAF, 146.650 MHz on Mt Faulkner is back on the air and is bigger and better than ever! The repeater has been fully replaced with commercial units thanks to Brian, VK7RR and Joe, VK7JG.

The new repeater also requires a 123 Hz subtone for local contacts and the original 141.3 Hz subtone for the link to VK7RAB on Mt Arthur. The repeater

also has a 141.3 Hz CTCSS tone on TX for people who require a subtone to eliminate mute openings around the city.

If people are using the 141.3 subtone encoders in their rig they will have to programme a second channel with 123 Hz subtone carrier for local contacts. So if you hear someone call you will have to determine from which end of the state the call is coming and change channels accordingly.

Echolink HF Node in Hobart node no. 165881

Ross, VK7VKK has established an Echolink node operating on 3.585 MHz LSB.

Echolink uses the Voice Over Internet Protocol "VOIP" and allows licensed amateurs to communicate world wide using the Internet as a communications back-bone either between computers and/or radios. For more info see www.echolink.org.

The HF Echolink station in Hobart, operates every day and presently the system logs around forty stations a day worldwide. If you are in the shack have a listen especially throughout the day and you will be amazed what calls you will hear.

SSTV internet gateway now available

Danny, VK7HDM and Ken, VK7DY have established a slow scan TV Internet gateway repeater on 146.950 MHz in Southern Tasmania.

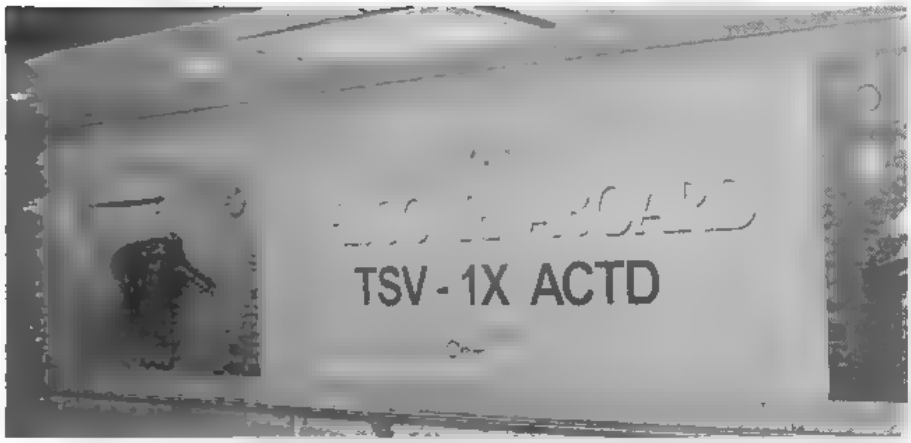
To send pictures out over the gateway you need 1750 Hz tone turned on in your SSTV program. Much like the HF SSTV repeaters. The equipment needed is a radio capable of simplex 146.950 MHz, a computer with a soundcard and a simple interface between the soundcard and the radio (see AR Magazine – March 2000) and an SSTV program and there are plenty of freeware ones, just do a search on, you guessed it, the Internet!

Northern Tasmanian Amateur Radio Club

On February 9, NTARC held its annual general meeting. It was very well attended with 25 members coming along to support the club

The following office holders were elected for 2005 – President: Alan, VK7AN; Vice-President: Kevin, VK7KVN; Secretary: David, VK7HAH; and Treasurer: Bob, VK7KRR.

NTARC's March meeting on Wednesday the 9th will be a talk on the Optus network in its many forms, the speaker is a specialist on GSM and cellular communications. This will be held at the Alanvale TAFE College, Block B at 7:25pm.



What the paying customers see!

Radio and Electronics Association of Southern Tasmania Inc.

On Wednesday 25 January a group of about 45 people visited International Catamarans for a tour of Catamaran TSV-1X ACTD (Theatre Support Vessel First Experimental Advanced Concept Technology Demonstrator) or just "Spearhead".

This 98 metre wave piercing catamaran has seen 120,000 nautical miles in the last two years including service with Operation Iraqi Freedom. From a communications perspective, the vessel has a T1 network connection via a 2.4 m C band satellite dish that is piped around the vessel and theatre of war command room. It can carry 300 passengers, 700 tonnes of cargo and has a top speed of 42 knots!

Thanks to US Army personnel, Josh and Victor for showing us through their pride and joy.

REAST AGM

We had more than 30 members and friends attend REAST's first annual general meeting. The official positions were filled by the following members: President: Justin, VK7TW; Vice-President: Brian, VK7HSB; Secretary: Dale, VK7DG; Treasurer: Roger, VK7XRN; and, Committee member: Bob, VK7KRW.

On April 1 & 2 REAST will be displaying and promoting Amateur Radio to the VK7 community at the 8th Model Makers and Collectors Exhibition at the Derwent Entertainment Centre. See you there!

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REAST AGM Attendees

News from...

VK5

Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The January meeting for AHARS was a social barbecue at Seacliff and was attended by about 40 people. A pleasant evening was had by all and included a bit of a giggle at some old films.

At the end of the evening a Certificate of Appreciation was presented to Christine VK5CTY by Jim VK5NB, the retiring President of the VK5 Division, on behalf of the WIA for the years of service she has given to amateur radio in VK5.

AHARS usual meeting night is the third Thursday of the month and the venue is the Blackwood High School. The meetings start at 7.30 with the guest speaker and conclude at 10.00 with a short break for coffee at the end of the talk.

All are welcome. If you are visiting and want more information, please contact Geoff VK5TY, or Paul VK5PH QTHR the callbook.

AHARS has taken over responsibility for the VK5RAD repeater now that the VK5 Division has closed its books as part of the move to a national WIA. Hopefully this repeater will be able to continue operating from the same excellent site which covers the state so well.

The threatened doubling of the rent for the site has been reduced to 10% only through prolonged negotiations with the owner of the site, by Geoff VK5TY. As long as there are not future increases of the size threatened, the status quo will be able to be maintained.

(Right) Christine VK5CTY shows her Certificate of Appreciation

Elizabeth ARC

The EARC had an early look at Jim VK5JST's Aerial Analyser and decided it would be an excellent project for club members.

Jim gave his approval for the club to purchase PCBs and Keith VK5OQ kindly offered to source the components for assembly kits. These were advertised on the VK5 Sunday morning broadcast. They were snapped up like the proverbial "hot cakes". Some club members decided to build their kits at the clubrooms, where they could get some assistance.

So a few weeks ago they turned up at the clubrooms with toolboxes and soldering irons and assembly commenced. One member, who had already built a kit, helped with advice. The skills standards varied a lot so it will be several nights before all the kits are completed and tested.

There was a comment that all the builders will not be pleased with their HF aerial analysers once they start to use them on their aerial systems and see what they are really like.

One member has already gone through this process with the aerial he has used for the last 20 years with good results, he reports, and SWR at the shack end.

Jim's Aerial Analyser is a handheld, self-contained, battery powered unit covering 1.2 to 32 MHz. It has an LCD readout giving impedance, SWR, frequency and capacitive or inductive reactance.

The kits cost about $100 while a similar commercial unit would cost four to five times this. The club is sourcing a further 10 kits all of which are spoken for.

Steve VK5AIM EARC.

Editor's note. *We hope to publish an article on this unit in the next few months.*

Five club members at work on their kits.

South Coast Amateur Radio Club Inc.

PO Box 333
Morphett Vale
South Australia 5162
E-mail: secretary@scarc.org.au
Website: http://www.scarc.org.au
Clubrooms: 12 Baden Terrace, O'Sullivan Beach, 5166.

South Coast Amateur Radio Club Inc. Annual General Meeting

The SCARC AGM was recently held on 24th November 2004, where the following positions had nominations and members voted in:

Chairman: Ellis Horman VK5ELS
Treasurer: Neville Pudney VK5ZHP
Secretary: Stef Daniels VK5HSX
Committee Member #1: Barry Bates VK5KBJ
Committee Member #2: Derek Evans VK5ZRE
Committee Member #3: Sam Adcock VK5KSA

Thanks to the past members who contributed to the development of the club, especially to Barry Bates VK5KBJ, who was Chairman for many years. This year he stated he definitely was not standing for the position, allowing someone else to take the reins.

The Russell Smith Memorial Award (judged annually by the members and presented to member who upholds the aims and objectives of the club) was presented to Barry Bates VK5KBJ. Congratulations Barry.

Minutes of the meeting will be placed on the club's website, with further information obtained by contacting the Secretary, Stef Daniels VK5HSX by either mobile 0417 821 747 or email: secretary@scarc.org.au . The SCARC website located at www.scarc.org.au .

Look forward to seeing you supporting the club over the next 12 months, with up and coming events like: Contests, Repeater Upgrades, fund-raising and attendance at meeting nights.

Regards,

Stef Daniels. VK5HSX
Secretary SCARC Inc.

VK4

Dalby & District Amateur Radio Club

Meets on the 1st Sunday of: February, April, June, August, October, and December at the 4DDD FM Studios, 107 Drayton Street Dalby, at 1400hrs

Postal Address: 15 Bunya Street. Dalby 4405
E-mail: ervon@bigpond.com.au
Repeaters: VHF 146.675. UHF 438.7 Co sited on the Bunya Mts.
UHF CB repeater channel 7 in Dalby
President: Ricky Lammas VK4NRL Ph 07 4662 0095
Secretary: Margaret Schwerin VK4AOE Ph 07 4662 3934
Treasurer: Neil Holmes VK4NF Ph 07 4662 4950
Repeater Co-ordinator: Mike Taylor VK4XT Ph 07 4662 2389

Please note corrections to the information printed in Nov 2004 in both AR and the WIA 2005 Callbook.

The correct and only postal address for Dalby & District Amateur Radio Club is:-Dalby & District ARC, 15 Bunya St, Dalby, QLD 4405. The PO box was cancelled in March 1999. We wonder how much correspondence has been lost because this address was not noted. The 2m and 70cm repeaters (Callsign VK4RET) are co sited on Mt Kiangrow in the Bunya Mountains. These repeaters service the Darling Downs and South Burnett areas and not just the town of Dalby.

Margaret Schwerin VK4AOE
Hon Sec D&DARC

Oxley Region Amateur Radio Club Inc.
Port Macquarie

announces

30TH ANNIVERSARY FIELD DAYS

Queen's Birthday Weekend
11th & 12th June 2005

Full details in club news and broadcasts later

First Class CW Operators' Club (FOC)

David Pilley VK2AYD

From time to time those of you that use telegraphy (CW) have no doubt heard stations signing with '161'. A combination of 73 (kind regards) and 88 (love and kisses). Those stations are generally members of The First Class CW Operators' Club (FOC).

The FOC is not new. It was 66 years ago that Bob Webster, G5BW, first put the idea of the Club to the RSGB. At that time the ARRL had their 'A1 Operators Club' and Bob wanted something similar in Great Britain.

Today there are 500 members around the world scattered in some 40 different countries. The majority are still in Great Britain and the U.S.A. Here in Australia we have only nine active members and need more.

The objective of the Club is to encourage a high standard of operating behavior on the bands. No, they do not consider themselves elite in any way. However they do try to live by the rules of a high standard of operating. Members are expected to observe their Code of Conduct – To foster and encourage a high standard of operating and behaviour on the bands – To observe the licence conditions and principles of band planning – To be considerate to other amateurs at all times – Promote exemplary operating standards – and to promote the future of the hobby.

FOC is not for everybody! But if you have a genuine love of CW and enjoy socialising with others of like interests, then FOC could be just right for you. The route to membership is quite lengthy but it is open to anyone who has the necessary skills and the right attitude. FOC is not a closed society; anyone who really wants to be a member can get there.

To become a member, you must be sponsored by five existing members, from at least two continents, who have been in contact with you using CW during the past 12 months. At least one sponsor must reside in Great Britain. It is expected that a potential member will have demonstrated his good operating practice, over the air, during an extended period.

During the sponsoring period, other members of the club may have the opportunity to object to the nomination of a specific station. Grounds for objection may include evidence of bad or ill-mannered operating, poor CW ability or even evidence that nominations have been openly solicited. Objections are thankfully very rare and are carefully considered by the Club's Committee, which will only uphold the objection if there are ample grounds.

The required sponsorship must be obtained within a period of six months. If you get your five sponsors in that time then you progress to the "starred list" for a period of three months during which the objections process described above still applies. At the end of the starred list period you will be eligible for membership and if there is room then you will receive an offer immediately.

Once having attained membership you are expected to continue reasonable levels of activity and continued observance of good operating practices is still required.

Each February the FOC hold their annual Marathon. This is a 48 hour weekend that provides an opportunity for old members to talk to old friends and to meet the new members. It does have a competitive edge for those interested in contesting.

Each year dinners are held around the world where members can come together in personal fellowship. The most popular is in the UK and held in October. For many years this was held at Lords Cricket Ground. USA members also sponsor dinners on both coasts.

Various awards, such as Worked All States – FOC members, are popular for those interested in a challenge and trophies are offered for operating achievements.

Generally FOC members operate around +.025 kHz on most HF bands except on the WRC bands where they can be found around 18.080 MHz and 24.905 MHz. If you hear one, why not give him, or her, a call and say hello and help foster the fellowship of Amateur Radio.

Telegraphy may no longer be part of the licensing curriculum, but it is a mode that can be enjoyed with people who want to foster and maintain a language that is personal. If you are interested in the FOC why not visit their web site at http://www.firstclasscw.org.uk.

See you on +.025 kHz

de David VK2AYD

(VK members VK2AYD, VK2BPN, VK2BJ, VK3XU, VK4EMM, VK6LW, VK6VZ, VK6WT and VK8AV.)

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Silent key

Bill Beyer VK3BHW

Members of the East Gippsland Amateur Radio Club regret the passing of our valued friend Bill Beyer.

Bill was born in Amsterdam in 1938 and after serving in the Merchant Navy trained as an Instrument Technician in Holland.He came to Australia at the age of 35 and worked in the automation industry before retiring to his retreat at Seaspray Road, Longford in East Gippsland.

Bill held a pilot's licence as did other members of his family. He was an inventive person and put together many novel innovations around the home, he also enjoyed building much of his Amateur radio equipment.

Bill passed away at Longford on Friday 11th February 2005.

Bob Neal VK3ZAN.
Secretary EGARC.

Spotlight on SWLing

Robin Harwood VK7RH

Disappearings

I have just received news that Deutsche Welle is going to drastically reduce their German language output, particularly to Oceania and Asia. DW will be only on two channels from 0600 till 0800 from Germany on 9735 and from Antigua but it is unclear what channel. As well relays from Russia and the CIS, which have been heard here in our local evenings, will also cease. Fortunately I do hear DW around 2000 broadcasting to Europe and Africa on 9735 or on 6075.I expect increased use is going to be made of their relay facilities at Trincomallee, Sri Lanka and at Kigali in Rwanda

As I have previously mentioned, Radio Vlanderen International is also ceasing external broadcasting on the 27th of March because of budgetary constraints. A relay of their domestic networks will be beamed to Central Europe. I expect that the Wavre transmitters within Belgium could be used but perhaps it is economically viable to rent senders from Deutsche Telekom or VT Merlin. These two European companies seem to have taken over as the primary senders for international broadcasters. VT Merlin seems to also arrange for senders in other countries whilst the Germans are restricted to using spare capacity over their senders.

There was a rumour that the Italians had left shortwave but fortunately it turned out to be propagation rather than a political decision.

HF blackout comes at the wrong time

In January, we had probably one of the most prolonged HF blackouts for some decades. A series of solar storms severely disrupted communications for up to a fortnight especially at the height of the dramatic rescue efforts for the Indian Ocean tsunami.

Solar Cycle

The predicted minimum for the current Solar Cycle could be later this year or early in 2006. The 13 metre broadcasting allocation is not as lively as it was 18 months back and the 11 metre allocation has now been completely abandoned by the French. The only broadcasters utilising this are low-powered remote audio OB links in America or experimental DRM transmissions.

Appearings or disappearings?

Ukraine now has a new elected president and a pro-western government installed in Kiev and I would not be surprised if the existing shortwave broadcasting facilities will increase their output, particularly to Europe and North America yet I expect that they will be beaming mostly to the former Soviet Union. Ukraine is politically divided with the western half pro-European and the eastern half leaning towards Russia.

Senders are located at both ends of the republic and are utilised by Russia and other CIS nations. I do expect also that domestic relays of international broadcasters will have been reinstated by now, which may mean that external broadcasts in Ukrainian via shortwave may be cut back.

A-05 broadcasting period begins

Don't forget that Easter Sunday, March 27th, is the commencement date for the A-05 broadcasting period, coinciding with the introduction of Summer time in the Northern Hemisphere. NSW, Victoria, Tasmania plus SA revert to Standard time on the same date. Expect major changes to frequencies and operational times on that date.

Well that is all for this month and your comments are always welcome at vk7rh@wia.org.au. 73 de VK7RH.

Over to you

"Shack in a Briefcase"

In the December 2004 issue there was an ad for the sale of a communications receiver from an SWL moving into an aged person's home where no antennas were allowed. This situation is fairly common with older Hams. I would want to remind those with this problem that they do not have to give up their hobby.

For example, I have recently been conducting further tests on my "Shack in a Brief Case" antenna. (See AR July 2002) This little antenna used indoors enables a wide range of contacts. A few days ago I was working VK3LY at Nhill, halfway to Melbourne, on 40 metres. As usual I was using my "invisible" wire lying on the tiles, an end-fed half wave on 40. When I switched to the mini antenna he could not notice any difference.

An indoor antenna might be expected to be a TVI problem, but with this tuned it is not so. On a small TV set some fifteen years old with its indoor antenna sitting 40 cm away from the transmitting antenna, and using 100 W. PEP from the transmitter, only the ABC showed any interference. The other channels showed none. On our main TV, in the next room, also with an indoor antenna, no interference was evident on any channel, even when feeding the TV through a cheap VCR tuner.

For those only interested in receiving, I have been using a small tuned antenna with a Yaesu VR-500 handheld broadband receiver with great success. Hopefully this will be published in AR at a later date.

Ron Holmes VK5VH

ALARA

Christine Taylor VK5CTY

It is just over six months until the ALARAMEET in Mildura

It is time to make your travelling arrangements so you will be there for all the fun. There are several caravan parks and motels in Mildura and lots to do and see.

The MEET will run from 9th to 12th September 2005. There will be an Unofficial Dinner on the Friday evening. This has become a tradition for those who are eager for the event to start. Official registration will be on the Saturday morning with an excursion in the afternoon. The formal Dinner will be that night and another excursion is arranged for the Sunday morning. In the afternoon we will have some presentations etc, then the venue for the 2006 ALARAMEET will be announced and the ALARA Banner will be handed on to the next coordinator.

For those staying on, another informal meal is planned for Sunday evening, followed by a trip to the Mungo national Park on Monday.

If previous ALARAMEETS are any indication, people will be arriving from the middle of the week before, and the last participants will probably not leave till the middle of the week afterwards. Some people are gluttons for punishment!

If you have never been to an ALARAMEET this will be a good one to attend. ALARA will be celebrating 30 years of existence, and will be returning to the site of the first Meet in 1984, 21 years ago.

Please do come to the MEET or contact us if you were an early member.

It is always a shame to lose contact with people even if they have taken up other interests. We really would like to know how you are and what you are doing now, even if you cannot join us.

Marilyn VK3DMS is QTRH the callbook or can be contacted through the ALARAMEET webpage the address is http://users.ncable.com.au/gsyme/AlaraMeet/ or through a link from the ALARA page http://www.alara.org.au

I can be contacted QTHR the call book or by email geencee@picknowl.com.au

Why not try 20 metres?

Several of our members have been looking at 20 metres lately with good results. Pat VK3OZ is a CW user and was delighted to have a contact with a station in Sweden one afternoon. Among other items of interest, they exchanged the temperatures they were expecting that day. In Sweden the maximum was expected to be –15°C while Pat was expecting 33°C. How marvellous it is to have a hobby that brings two parts of our diverse world together in real time.

Pat's other contact was even more exciting. She heard a station in Tel Aviv and made her first ever contact with Israel. Now she is waiting for the QSL card to arrive. She says that 20 metres seems to be there for a while and then to disappear. After a couple of hours you will again hear DX stations then it may fade again and return quite late in the evening, so she suggests you keep an ear on the rig and perhaps call CQ at intervals, rather than continuously.

Pat was presented with the Florence McKenzie trophy at Murray Bridge. She has won this trophy, awarded for CW contacts, three times, now, hopefully someone else will join her in future ALARA Contests. We need more CW operators!

Shirley VK5JSH is a regular on the 222 Net on Monday afternoons and has made some unexpected contacts through this marvellous Net. Officially the 222 net starts at 0530 UTC but many overseas YLs call in before that because of the time differences. If you want to catch these YLs you should call in early, too.

Shirley has also recently spoken to a Norwegian YL on Echolink. To some amateurs Echolink is "not really amateur radio" but as you can only participate in this mode if you are an amateur it really is part of the amateur world.

One Monday, not so long ago, the VK YLs on 80 metres were startled to hear a G station coming in loud and clear. Yes, on 80 metres at night! The OM was using an HF Echolink channel. I suggest you listen out, you may be surprised!

When visiting another state or town

There was quite a bit of visiting during the first week in February. While my OM and I were in VK3 for a family birthday we took the opportunity to visit Marlene VK3EQO (formerly VK5QO) and her sister Valda VK3DVT, and, on another day we visited with Jean and Stewart Day who would be known to many amateurs around Australia. It is great to renew friendships made through amateur radio.

After one and a half trips across Bass Strait (they were on the "Spirit of Tasmania" when it was turned back by the storm and had to continue their journey the following day) Marilyn VK3DMS and her OM Geoff VK3ACZ spent some time with Susan VK7LUV and her OM Alan VK7JAB in Ulverstone.

Why not go visiting, too, next time you pass through a new place? Or at least, put out a call on 2 metres, there is usually someone listening who would be delighted to have a chat and welcome you. Of course, if you hear someone from interstate, do give them a call and make them feel at home.

Pat receiving the Florence McKenzie Trophy at Murray Bridge

Bill Magnusson VK3JT

Shielding of satellite signals by wet trees

This is a topic that comes up from time to time in discussions on the bulletin board and on-air. Wet or dry, a large tree can be a strong attenuator of signals particularly in the UHF and microwave bands. Trees can act as an effective barrier to 2.4 GHz signals from Oscar satellites. If the foliage is wet it can completely block down link signals and render even higher power uplink signals ineffective. Various attempts have been made to quantify this problem but there are simply too many difficult variables like density and size of foliage, tree type and age, seasonal influences on sap flow or degree of wetness. Studies have been done but the results are usually inconclusive and unlikely to shed any light in your particular case. Despite this uncertainty it's accurate to say that trees spell trouble and are best avoided when siting your antenna system. The problem can't be overstated. I know of amateurs who have literally given up on amateur satellites because of trees they couldn't work around. It would be wise to seriously look up and about before deciding exactly where to put your satellite antenna mast and indeed whether your location gives you a good enough sky view to use the satellites at all. It could save you a lot of aggravation later on. As Oscar frequencies inevitably move upwards, close by trees certainly won't help your station's efficiency. On the other hand people have set up successful ground stations on the balcony of a high-rise building with very limited sky view. We don't all live in a perfect situation. In the end it's a matter of fitting in with your environment - but remember - a tree can be just as opaque as a solid building at microwave frequencies.

Do your own thing

It seems like there's always some discussion on the various forums about which type of satellite AMSAT should or should not spend time and resources on developing and launching. Sometimes this "discussion" culminates in a good-ol'-knock-down-drag-'em-out on the bulletin board. When all the dust settles and the ruffled feathers smooth down again the idea that usually endures is to simply do your own thing. Do what you enjoy. After all it's supposed to be a "fun" hobby. The various agencies that work together to provide us with a range of satellites to play with do a great job in catering for all tastes and allow for freedom of choice for satellite users. If you are a newcomer and want to simply wet your feet before plunging in for a full scale commitment of time and money, you have the easy-sats. Some of these require only a hand held transceiver and a simple hand held antenna to point in the general direction of the bird as it goes over. Even this basic arrangement can give the newcomer a definite "feel" for satellite operation. An appreciation of Doppler shift, the motion of a satellite across the sky, the signal strengths to be expected, the operating protocols - all play their part in introducing the newcomer to the complexities of satellite operations in a painless way. In lots of cases an experience like that can whet the appetite for more - exactly what it's designed to do. I have friends whose first hamsat experience was a hand-held and rubber duckie contact with MIR and who have gone on to develop full auto-track ground stations capable of working the high orbit birds on microwave. Somewhere in there is a level that has the capability of holding your interest no matter what your degree of involvement turns out to be. We will have more high orbit birds soon. The digital satellites are there if that is your inclination. In the meantime - do your own thing. The satellites are there to play with or to do some serious learning if that's your bent. At either end of that spectrum it should above all be fun!

Celestrak users should move to Space-Track as soon as possible.

The NASA/GSFC OIG web site recently announced that they will cease operation on 2005 March 31.

Tom Kelso subsequently published a bulletin confirming that CelesTrak would continue to disseminate TLEs until that date too, but will be unable to do so starting April 1. He went on to encourage anyone who had not already done so to register a Space Track account as soon as possible in preparation for this transition This can be done at <http://www.space-track.com>. Issues regarding the user friendliness of the Space-Track data for amateur radio tracking programs are being addressed daily in discussions on the AMSAT bulletin board. Software developers are also beginning to look at the issue. For those who have a favourite tracking program it will still be required of you to download the TLEs from Space-Track and do some processing yourself. That will remain the case until some kind soul does for your favourite program, what Northern Lights Software has done for NOVA - or - some agency like AMSAT is eventually authorised to

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Contact Graham if you wish to be placed on the mailing list.

AMSAT-Australia Echolink Net

The net meets formally on the second Sunday of each month. Anyone with an interest in Amateur Radio Satellites is welcome to join in and take part. Graham VK5AGR acts as net controller. The net starts at 0600UTC and you can join in by connecting to the AMSAT conference server.

All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's e-mail address is:
vk5agr@amsat.org

redistribute element sets which have been altered to suit our purpose. A few other possible solutions are on the agenda but they could take some time and in some cases may never happen. For this reason alone it would be wise to follow Tom's advice and establish an account - now. It seems that at least for the immediate future no other agency - OIG, Celestrak or AMSAT, as examples - is authorised to re-issue the kep data from Space-Track in suitably modified format. In my own case I'd love to see someone within AMSAT develop software to "massage" the element sets from Space-Track so they could be used more easily in commonly used tracking programs like Instant Track and WiSP32. In the meantime it would be appropriate for us all to stop for a moment and remember the great service offered in the past by the Optical Imaging Group at Goddard and the tremendous work done by Tom Kelso in bringing us the keplerian element service we had all become accustomed to having at call and free of charge.

NOVA version 2.2a tackles TLE issue head-on

Nova for Windows version 2.2a is now available. It includes automated internet download from Space-Track as well as a Keplerian element extractor utility for managing Space-Track's general catalogue of 8,500 satellites. NOVA is the first amateur radio satellite tracking program that I know of to be updated to include this facility. Updates to existing licensees of Nova for Windows are free, go to <http://www.nlsa.com> for downloads. Nova users will find this a convenient answer to many of the current difficulties being experienced by users of the Space-Track elements. Here's hoping that other software developers will follow suit.

Latest P3E design meeting in Marburg

A P3E satellite design review meeting was held in Marburg Germany from January 26th through January 30th. The primary focus of this meeting was the design of the IHU-3 and the CAN-Do interface. In attendance for AMSAT-NA were Bob McGwier N4HY, Bdale Garbee KB0G, Stephen Moraco KC0FTQ, Lyle Johnson KK7P, and Chuck Green N0ADI. AMSAT-DL was represented by AMSAT-DL President Peter Guelzow DB2OS, Prof. Dr. Karl Meinzer DJ4ZC, Hartmut Paesler DL1YDD, Gerhart Metz DG2CV and 3-E Project Manager Heike Straube. A great deal of progress was made during the week. A detailed task and schedule list was prepared for completion of IHU-3 and related tasks over the next several months. AMSAT-NA President Rick Hambly W2GPS, who spent the week in Germany and Austria on business, joined the meeting on Saturday, January 29th. This was Rick's first visit to AMSAT-DL in Marburg. Rick was very pleased with the warm reception he received and with the great progress that has been made on the P3E satellite. [from AMSAT News Service]

ar

2006 Callbook: *we need help!*

We are about to start on the production of the next issue of the Callbook.

If you have any amendments which need to be made to the non-callsign information published in the 2005 issue, please let me have it ASAP.

For changes to the actual callsign information, make sure that any changes of detail reach the ACA before 30th June.

Also, we would be happy to receive photographs which may be suitable for the front cover.

E-mail to
callbook@wia.org.au
or by post to
Callbook PO Box 2175
Caulfied Junction 3161

Brenda VK3KT

Contests

Ian Godsil VK3JS

Contest Calendar March – May 2005

March	5/6	ARRL Intl. DX Contest	(SSB)
	12/13	RSGB Commonwealth Contest	(CW)
	19/20	John Moyle Field Day	(CW/SSB/FM)
	19/20	Russian DX Contest	(CW/SSB)
	26/27	CQ WW DX Contest	(SSB)
April	2/3	Marconi Contest	(CW/SSB/RTTY)
	2/3	SP DX Contest	(CW/SSB)
	2/3	EA WW RTTY Contest	
	9/10	Japan Intl. DX Contest	(CW)
	16	Holyland DX Contest	(CW/SSB)
	16	TARA Skirmish Digital Prefix Contest	(PSK)
	22	Harry Angel Sprint	(CW/SSB)
	23/24	SP DX RTTY Contest	
	23/24	Helvetia Contest	(CW/SSB)
May	7/8	CQ-M Intl. DX Contest	(CW/SSB/RTTY)
	21/22	Baltic Contest	(CW/SSB)
	28/29	CQ WW WPX Contest	(CW)

Greetings to all readers,

We all know that in Australia the business of contesting is not highly regarded by the majority of amateurs – you know the attitudes such as "Oh hell, another b... contest", or "I'm not really in the contest but I don't mind giving out a few numbers".

The first of these approaches is an honest straight-out approach; the second really an attempt to have a bet each way, with the real possibility of frustration for a serious station that gets caught up with this type of operator.

Not for a moment do I expect that attitudes will change in 2005, but it leads me to something that was brought to my attention late last year and may also be a pointer to a new trend emerging.

Gentlemen's Agreement

There would be no amateur in this country who is unaware of the fact that the lower end of our HF bands has been the place to find CW signals. Yes, there is a Band Plan published in the Call Book, but by and large the division of the spectrum is by mutual agreement, usually called a "Gentlemen's Agreement". This applies equally to using a 20 metre frequency for SSTV, as to not using FM on 52.110 MHz or 144.100 MHz, or not using SSB on 146.500 MHz.

With the deregulation of CW and the welcome addition of new callsigns to the HF bands, these Gentlemen's Agreements were not annulled.

It was, therefore, most upsetting to become aware that now, in international SSB contests, it is becoming noticeable to hear voices calling "CQ Contest" in the CW band segments. I can understand why it happens, but when VK operators join in willy-nilly I think it very poor practice, as we all know the long-standing rules. To me this shows up the Amateur Service in a very poor light, whether it be in Australia or in DX countries. In the latter case, many of them have designated contest sub-bands, so those operators may well be in a double breach of regulations and Gentlemen's Agreements.

I would like to hope that all VK and ZL operators would abide by the time-honoured practices of keeping sections of bands for specific purposes. This way we show ourselves as disciplined and responsible — good indicators of a self-regulated hobby.

This does not mean that contesting can no longer be enjoyed and even grow. It does mean that we continue to abide by the "rules and spirit of the contest". Please give this serious consideration.

2005 Australian Contests

A complete list of VK contests is on the WIA website, as well as in the Calendar above.

YOU can help make each event enjoyable both for yourself and everyone else participating. Please note the dates that interest you and "prepare for action"!

73 and good contesting,

Ian Godsil VK3JS

Results: John Moyle Memorial National Field Day 2004

Denis Johnstone VK3ZUX/8

Portable, 6 Hour

Station	S/M Op	Mode	Band	Points	Cert.
VK5SR	Multi –op	Phone	All	2746	*
VK3AWS	Multi –op	Phone	All	1170	*
VK3BOR	Multi –op	Phone	All	538	*
VK3BSY	Multi –op	Phone	VHF	396	*
VK3FRC	Multi –op	Phone	All	326	
VK5GRC	Multi –op	Phone	All	264	
VK4AOE	Multi –op	Phone	HF	186	*
VK2EMU	Multi –op	Phone	HF	68	*
VK3ZPF	Single	Phone	VHF	1216	*
VK3XYC	Single	Phone	VHF	632	*
VK6ZN/2	Single	Phone	HF	210	*
VK1AI	Single	All	HF	94	*
VK2IRP	Single	All	HF	76	*
VK3JS	Single	Phone	VHF	76	*
VK3JMG	Single	Phone	HF	66	*
VK3MGZ	Single	Phone	HF	44	*
VK5RG	Single	Phone	HF	40	
VK5VH	Single	Phone	HF	36	
VK1WJ/2	Single	All	HF	36	*
VK2AGC	Single	Phone	HF	26	
VK2BPB	Single	Phone	HF	10	

Portable, 24 Hour

VK3SAA	Multi	Phone	VHF	6646	*
VK2SRC	Multi	All	All	4984	*
VK3QM	Multi	Phone	VHF	3902	*
VK5ARN	Multi	Phone	VHF	3510	*
VK5BP	Multi	Phone	All	3154	*
VK3BML	Multi	Phone	All	2898	*
VK5AR	Multi	Phone	All	1658	
VK4BAR	Multi	Phone	All	1452	
VK2HZ	Multi	Phone	All	1363	
VK3EGC	Multi	Phone	All	1346	
VK2AFY	Multi	Phone	All	966	
VK4IZ	Multi	Phone	HF	930	*
VK4WIS	Multi	All	HF	752	*
VK5BAR	Multi	Phone	HF	566	*
VK4WIT	Multi	All	HF	296	*
VK4TWR	Multi	Phone	All	292	
VK2TWR	Single	Phone	VHF	2022	*
VK3KME	Single	Phone	VHF	1606	*
VK5NJ	Single	CW	All	290	**
VK3DBQ	Single	Phone	All	267	*
VK2KWM	Single	Phone	All	250	*
VK3UBM	Single	Phone	HF	216	*
VK5DG	Single	Phone	HF	200	*
VK4EV	Single	All	HF	156	*
VK3JS	Single	CW	All	110	*
VK3XOK	Single	Phone	HF	108	
VK3JS	Single	Phone	HF	40	
**	President's Cup				

HOME Station, 24 Hour

VK3FGN	Single	All	All	255	*
VK3KYF	Single	All	All	216	*
VK5JBJ	Single	All	All	211	*
VK3XBA	Single	All	All	117	
VK2XIE	Single	All	All	86	
VK3KQB	Single	All	All	64	
VK5NY	Single	All	All	63	
VK2KRR	Single	All	All	59	

Home Station, 6 Hour

VK3IO	Single	All	All	183	*
VK3TSR	Single	All	All	56	*
VK5EK	Single	All	All	49	*
VK3XKS	Single	All	All	48	
VK4BIF	Single	All	All	46	
VK2BQS	Single	All	All	45	
VK2JHN	Single	All	All	43	
VK2VD	Single	All	All	37	
VK3KK	Single	All	All	36	
VK2IGS	Single	All	All	6	

SWL, 24 Hour

Ray Ford	Single	All	All	171

Check Logs

VK3CIS VK3ZUX VK5JGM

Comments from 2004 JMFD

Firstly an apology. I only received the last of the logs in August and then with the pressure of work was unable to complete the task until now. I had planned to retire early to allow time for this activity and then somebody offered me more money than my likely pension so I took the offer. Having moved to VK8 it took a while for the log submissions to catch up.

I was surprised and concerned by the number of submissions that had not properly followed the rules regarding log submission. Even those who submitted an electronic form of the log most simply called the log file JMFD2004. Hence it made life very difficult to separate them from the electronic file in which they were submitted, as most simply had the same file name. In the rules for next year there will a suggested file name format of 'Callsign_JMFD.*' In this way each of the electronic files will be unique. Paper logs were generally better in compliance with the rules.

There were 68 logs submitted and 28 people sent them in electronically. Many more stations took part than submitted logs, which is a pity as a number of stations that failed to submit a log could well have won some categories. Perhaps stations were not prepared to submit the log because they felt that their score was not in a winning range. I would like to suggest that in 2005 submit the log and you never know.

People who submitted logs even on paper did not always complete the declaration required by the rules or include their return address.

There were no logs submitted from VK7 or VK8 and only one traveller from VK6 put in his log. Perhaps the weather was too bad for the southerners but out west and up north I wonder what the excuse might have been? Maybe in 2005 this can change?

Many people wrote to thank Eric for his past service for this contest and I join them in thanking him for his considerable efforts in the past.

Some comments received: -

• *The day for me was a great success. I don't often get out in the field much with my gear these days and really enjoyed the planning, setting up of my small operation and making the calls All on the air were so keen to make contact and say g'day. My time was limited so only a few contacts were made but the spot I chose at the Avon Dam in the Southern Highlands of NSW could not have been better. The conditions were wonderful, blue skies and about 23 deg C. The bands were quiet and making contact was very easy and pleasurable. My gear*

worked wonderfully well with all of my 5 watts for the most part making the grade with the other contest stations.

- *Many stations refused to exchange numbers because the "three hours were not up" on the time used by the other station. Others waited for an extra 5 minutes past the hour to ensure that the rule was not contravened.*
- *Power source several fully charged batteries. It ended up very cold and very, very windy. Getting the gear home was funny, got 2 m yagi home with 3 elements bent and smashed folded dipole. Left HF dipole in the tree and the following day cousin's father tried out new slasher and you can guess what happened to 30m of feed-line? I saw the funny side but I am not sure about next year.*

Rule changes

I would like to suggest that the rules need revision and I am asking that people should think about a possible rule change and pass those comments to me at vk3zux@hotmail.com or via the WIA. The rule changes are mainly for simplification of the very complex scoring in use at present and to attempt to make it a little more equitable.

1. As far as rule changes there were several negative comments about use of the time blocks instead of the more straight forward three-hour rule between contacts as in other contests.
2. I believe that should be a simplification of the number of categories.

   There are simply too many categories. A station with very high scores claiming VHF only or all bands did not win an award, as they were 5th in that particular category, while a station with a lowly score claiming only HF could win first place. To simplify the number of categories will better allow stations who have worked very hard to get a good score to win an award. The alternative is virtually to issue a certificate for every log submitted.
3. Portable or Home. The home station should be given some distance multiplier (half of the Portable Station) 24 hour or 6 Hour. Same as every other Contest.
4. The weather and other commitments regulate the activity so there is no guaranteed result. The ideal of the contest is to promote portable operation and it has achieved that aim. However, there is an aim to get more activity and this can be achieved by having people submit their logs. Perhaps a certificate of participation for all submitted logs as well as the awards for fewer categories.
5. Phone or All mode. - There was only 8 logs that claimed All mode and only 2 that claimed CW CW is moribund and the activity does not require a separate category, though a 2 point advantage for using CW could provide an interesting experiment? Other modes like FSK441 etc should not get any premium?
6. HF or VHF – A number of stations submitted All Band entries as well as HF only and VHF only. Many of the highest scores were VHF only. I do not believe that there needs to be as great a separation between the bands now that everyone has an equal go on all bands.
7. The differential multipliers for VHF produced some very large numbers.

Simply food for comment.

Silent key

Murray Collings VK8NUE

Born Adelaide 16th Feb 1920 and passed away in Alice Springs 28th July 2004.

Murray attended Pultney Grammer School in Adelaide, his interest in radio started early, with his first job driving a delivery van for a radio shop and studying radio at the School of Mines.

Murray served in signals in the army during WW11 and personally experienced the bombing of Darwin..

His interest in radio continued throughout his life in the outback where initially radio was the only means of communication and in 1985 joined the ASARC, studied for and obtained his amateur licence.

Murray enjoyed ham radio, particularly running the Travellers net on 21Mhz.

He was a member of Masonic Lodge and a keen lawn bowler.

Murray's other interest early in life was horse riding and it was through this activity he met his wife Grace, who served in the WAAR working in meteorology in Melbourne and enjoyed horse riding with friends at Ringwood in Victoria.

Murray and Grace married in 1946 and in the Northern Territory their life together began, firstly on Ti Tree and Pine Hill Stations, then they took up crown land 80 miles east of Alice Springs, which Grace named Ringwood. He drove his cattle and horses from Pine Hill to Ringwood, taking 6 weeks. At first living was very basic but soon Murray built their first homestead, masonite walls corrugated iron roof and concrete floors.

With wife Grace and later daughters Margaret and Judith established, he developed the station, drilling and equipping bores for water, completing miles of fencing, building yards, mustering cattle and setting up electricity generation, and in the midst of all this found time to win prizes at the Alice Springs Show for cattle, produce and equestrian events

This strong willed, determined yet reserved man quietly achieved a great deal during his long, productive and satisfying life. He instilled confidence in people and worked along side his employees thus earning their respect and loyalty.

Murray was a true outback pioneer.

Murray is survived by wife Grace, daughters Margaret and Judith.

Jeff VK8GF

Results: Remembrance Day contest 2003

Alek Petkovic VK6APK

VK6 wins again!

A big effort by the VK6 Division means that the RD trophy will remain in the West for another year.

As a member of the VK6 Division, I can verify that there was tremendous enthusiasm and a strong desire to put in a winning effort this year. Congratulations to all who participated and made the win possible.

As can be seen from the results, the win was only by the narrowest of margins. VK4 was right up there with VK6.

The task of checking logs and collating results was made very easy by the high standards of submitted logs. I believe that this is due to the good understanding of the rules and the increased use of computers for contest logging.

Here now are the results for the contest.

Divisional Scores

Table 1 shows the placing of each division along with their overall Improvement Factors.

Table 1: Divisional Ladder

1st	VK6	1.420
2nd	VK4	1.417
3rd	VK2	0.956
4th	VK5/8	0.870
5th	VK7	0.798
6th	VK1	0.578
7th	VK3	0.386

The total scores in both HF and VHF are shown in Table 2.

Table 2: Divisional Scores

Div'n	HF	VHF
VK1	499	65
VK2	3784	126
VK3	2172	710
VK4	2285	2842
VK5/8	2218	1859
VK6	1586	9387
VK7	1640	512

For those who wish to know how the final score for each division is calculated, I have included the following live example of how it is done. I will use the VK3 Division's figures in the calculations.

First is the calculation of Benchmarks for VK3 for 2001 RD Contest.

2002 Benchmarks

(As published in 2001 results and 2002 rules)

HF 3461
VHF 7089

2002 Scores

(As published in 2002 results)

HF 2601
VHF 2218

Formula:

2003 Benchmark = (0.25 x 2002 Score) + (0.75 x 2002 Benchmark)

Calculations:

HF

2003 Benchmark = (0.25 x 2601) + (0.75 x 3461)
2003 Benchmark = 650.25 + 2595.75
2003 Benchmark = 3246

VHF

2003 Benchmark = (0.25 x 2218) + (0.75 x 7089)
2003 Benchmark = 554.5 + 5316.75
2003 Benchmark = 5871

Those 2 benchmark figures are the scores the division needs to beat to register a positive improvement factor in each section of the contest.

Now to calculate the final score, let's use the points that the VK3 division scored in HF and VHF this year.

Formula:

Improvement Factor = 2003 Points divided by 2003 Benchmark

Calculations:

HF

2172 / 3246 = 0.669

VHF

710 / 5871 = 0.121

The two improvement factors are now averaged to give the division's final result.

Formula:

Overall Score = (HF Improvement + VHF Improvement) / 2

Calculation:

Overall Score = (0.669 + 0.121) / 2
Overall Score = 0.790 / 2
Overall Score = 0.395

Here are the Benchmark figures for the year 2004. This table will also appear in the rules for 2004. As above, the formula for determining these values is:
2004 Benchmark = (0.25 x 2003 Score) + (0.75 x 2003 Benchmark)

Table 3: 2004 Benchmarks

Div'n	HF	VHF
VK1	586	168
VK2	3909	131
VK3	2978	4581
VK4	3203	1887
VK5/8	3234	1711
VK6	2189	5583
VK7	1584	829

The following table shows the total number of logs received over the last 4 years. * Denotes winning division.

Table 4: Logs

Div'n	2000	2001	2002	2003
VK1	9	16	8	8
VK2	41	41*	25	41
VK3	137	57	57	43
VK4	78*	40	53	76
VK5/8	46	51	54	41
VK6	59	47	72*	74*
VK7	41	24	27	17
Total	**411**	**276**	**296**	**300**

Individual Scores

The individual scores for entrants are listed below. Certificate winners are denoted by an asterisk (*) and the top Australian scores in each section by a hash (#). Multi operator certificate winners are denoted by (M). Certificates will be issued to the top operators in each division as deemed by the contest coordinator. Where a multi operator station holds the top score, a certificate will also be issued to the top scoring single operator in that section. Where a single operator station holds top place, only that station will receive a certificate.

VK1

HF Phone

AI	123*
LW	104
DW	80
KMA	30

HF CW

LK	140*

HF Open

KMB	42

VHF Phone

DW	40
KMA	25

VK2

HF Phone

XT	263*
WHQ	228
DCL	200
JKK	161
CZ	144
CAA	140
IO	133
BDT	106
APP	61
PS	59
YW	50
LCD	48
IRP	39
KCO	35
BUI	24
EJK	19
CIF	14
RL	11

HF CW

OI	206*
BHO	182
TM	164
EL	100
WL	98
CW	72
EAH	48
RJ	48
BCC	42
MQX	30

HF Open

BO	343*
AYD	253
BPL	234
YN	157
ASU	74

VHF Phone

BDT	33
LCD	23
HEW	16
ZCV	16
ZCM	15
BZD	12
EJK	11

VK3

HF Phone

SY	250*
AHY	184
AVV	111
AMW	91
DS	87
JK	84
MNA	84
KTO	77
ATN	68
ADW	62
AAM	54
BCL	51
SM	49
GH	47
GHA	47
DY	46
NA	34
AKT/4	27
KBD	24
KK	21
DCP	20
JSS	18
ABP	15
EX	12
XH	7
KQB	6

HF CW

KS	94*
VB	80
BKU	82
ANJ	70

HF Open

JS	199*
OZ	71

VHF Phone

MID	185*
JK	172
JS	66
HFS	54
GH	47
JWT	40
KK	40
XJU	39
XH	30
AKT/4	26
EX	22

VK4

HF Phone

WIT	254*
BAY	190
FNQ	175
WIL	155
BTW	75
BAF	65
AWL	60
PKT	54
ZA	37
DFG	34
ACB	30
ACC	30
PS	30
TE	29
AAH	28
PJ	25
JAM	24
FU	20
FK	17
KET	17
GM	8
AA	3
DUG	3
PAL	2

HF CW

BUI	224*#
COZ	40
RE	28
IW	20

HF Open

LT	237*
IZ	107
GZ	94
CCV	90
TJ	57
EV	23

VHF Phone

AA	275*
ZDX	210
ZBV	182
AR	158
RC	137
PKT	134
EHT	125
AML	117
LO	113
ZA	95
AFS	92
HSV	79
WIT	76
KF	71
PAL	66
KLC	61
TJS	60
EV	58
OE	56
PS	53
GZ	52
ZM	50
JUS	47
PJ	46
3CE/4	42
KET	42
ARS	39
FNQ	36
JAM	36
KJD	30
BB	29
BRC	29
MC	24
VKD	24
KD	21
AAH	16
DUG	13
LU	13
ACC	11
IA	11
OD	10
GM	3

VK5/8

HF Phone

AY	391*#
AIM	248
BP	187
DJ	139
EMI	106
KMC	83
XY	70
RV	62
SIG	61
ASN	55
NN	51
TW	45
RK	24
BVJ	23
JQ	20
OF	16
AJW	14
ATQ	14

HF CW

UM	152*
BGL	86

HF Open

ATU	228*
WO	105
RG	38

VHF Phone

USB	398*
HWF	232
MX	180
ZMB	179
XY	173
AR	116
SE	94
ATQ	92
KLD	80
RV	50
KMC	48
ZKK	47
OQ	41
AVQ	33
AY	29
ZLV	25
AMK	22
OF	20

VK6

HF Phone

CSW	146*
APK	122
AB	120
ADI	108
JP	93
CB	86
KRC	59
KHD	37
KG	36
ABS	30
SAR	29
AR	24
JIP	19
EH	13
KH	11
NKB	3

HF CW

AFW	168*
AF	68

HF Open

LC	177*
WW	166
RZ	40
NGW	31

VHF Phone

XRE	514*#
APK	364
TKR	360
CSW	347
ANC	340
JIP	340
ZBP	340
MIN	277
BDO	259
HRC	256
ZAR	256
SAR	228
JP	225
AD	222
KAD	207
SAA	206
SCS	206
SH	206
AR	200
NU	200
HAO	191
HGR	190
KY	189
VHF	186
ZKO	170
TRA	157
TT	149
KG	147
UMG	133
NKB	130
RRG	125
RO	109
EH	106
CRO	101
ARO	100
SIX	100
RZ	90
VMS	82
YDH	76
ZYZ	66
HCJ	64
HK	62
TS	55
KTN	54
KHD	45
AF	33
JRC	30
SMH	30
PM	13

VHF Open

FJA	523*#
NGW	262
WW	68

VK7

HF Phone

CK	247*
TW	237
KC	185
VH	52
KH	39
JGD	34
RM	30
PP	20
AK	15

HF CW

RO	204*
EE	128

HF Open

GN	449*#

VHF Phone

KRW	201*
JGD	136
RM	91
TW	72
VH	12

Overseas

HF Open

ZL1PZ	54

HF Phone

ZL2ADN	28

SWL

ZL-2001	59

Check Logs

ZL2AJB
P29AJF

In closing, let's hear from Austin, VK5WO.

Another good RD Contest being able to participate and remember our fallen fellow amateurs. This contest has special memories for me; first contest in 1950 with 40 contacts, late 50s top VK5 open with 330 contacts. I think I have only missed 2 contests since 1950.Great to meet up again with VK2BO Jim, VK2XT Bill and VK4LT Al; They have featured in my logs for many years Bill VK2XT is 91 years and still going strong. I am only a boy at 79. 73s Austin VK5WO.

Thanks Austin. I hope there are plenty of RD Contests left in all of us.

73, Alek. VK6APK

ar

Over to you

One amateur's advice

Hello Friend,

I read with interest your enquiry regarding the WIA and your hopes of setting up a UHF CB Radio club in the Wahroonga area.

I am a licensed amateur radio operator, a member of the WIA and a member of the local amateur radio club in our area. The amateur radio club is the Hornsby & Districts Amateur Radio Club. Further information on the club can be seen on the following link http://marconi.careless.net/hadarc/intro.html

I have and also operate CB radio (an Icom IC-400Pro) and have operated CB radio since the late 1960's (pre licensing days when 27.240, the old handphone frequency was the only channel available). I had my time on 27MHz, then progressed to UHF when it was first introduced back in the early 1980s (or was it late 1970s? – Seems like a long time ago) and progression has led me to amateur radio. In fact I was quite lucky to be one of the first people on UHF CB before Phillips released their FM-320 as I knew several Phillips technicians who were trialling the FM-320 around Sydney at that time.

Radio is a wonderful hobby whether it is just chatting to mates, chasing DX or getting into the technical aspects of radio and antennas. I have seen CB radio clubs come and go since the early days of the KT (Kilowatt Tango Club), Southern Cross DX Club and many more I have forgotten. Without trying to sound negative, the one main problem with a local CB Radio club was the general anonymous nature of CB Radio and the difficulties in communicating with the "good radio operators" while trying to ignore the associated mess. I am sure you have listened to some of the local UHF CB repeaters around Sydney and heard the mess that anonymous users create. With amateur radio, no one is anonymous and that virtually removes the problems which have and always will persist on CB Radio. Another problem is that just one local CB radio club cannot offer the services, assistance and network that amateur radio has set up globally through its various national bodies such as the WIA in Australia, the RSGB in Britain and the ARRL in the USA and of course the input from our local amateur radio clubs who make this network possible.

Amateur Radio has always been seen as perhaps too hard to get involved in because of the associated exams and required technical knowledge needed to pass exams. It would seem you and your friends are genuinely interested in radio and I am not sure if you are aware of the changes to the amateur radio service that will begin early 2005.

In 2005, the ACA will be introducing a "Foundation" amateur radio licence. This licence will be similar to the recently introduced Foundation licence in the UK and will require a much lower level of required technical knowledge but will allow you to operate amateur radio on several amateur bands with 10 watts of power. (note that a standard UHF CB is only 5 watts and CB Repeaters are usually also only 5 watts, amateur repeaters generally are anything from 20 watts to 100 watts+ which allows greater coverage of an area).

It is believed that access to the amateur bands for Foundation licence holders will allow operation on the following bands;

80 metres (3.5 - 3.7 MHz)
40 metres (7.0 - 7.3 MHz)
15 metres (21.0 - 21.45 MHz)
10 metres (26.0 - 29.7 MHz)
2 metres (144 - 148 MHz)
70cm (430 - 450 MHz)

The full amateur review outcome can be downloaded from the ACA website on http://www.aca.gov.au/aca_home/licensing/radcomm/amateur_review/amateur_review_outcome.pdf

If you and your friends are seriously interested in radio, I urge you guys to consider talking to HADARC and perhaps sitting for the Foundation Licence when it is introduced.

It would be much less trouble than setting up a CB club, attempting to obtain a CB repeater licence (which at this stage will not be possible as all UHF CB repeater allocations in and around Sydney are taken and CB repeater licences are subject to operation within a radius which I believe would not allow Wahroonga to obtain a licence due to UHF CB Channel 7 (Pennant Hills) being in the immediate area). You also need to consider repeater site location, maintenance, licensing and of course abuse of the repeater. Repeaters must also be serviced by a suitably technically qualified person who would be nominated on the ACA repeater application and must be a type approved repeater approved by the ACA for use on the UHF CB Band. This could end up being quite a financial hole for a club with a small membership. If your interest is in WIA affiliation then you must also consider the requirements for affiliation with the WIA.

With the introduction of the Foundation Licence, amateur radio will not be the technical obstacle it has been in the past and combined resources of club membership, WIA membership and a very high level of technical expertise allows utilisation of those resources by all amateur radio operators.

As mentioned, I am a member of the Hornsby & Districts Amateur Radio Club and the club maintains repeaters on both 2 metres (147.250 MHz) and 70cm UHF (439.975 MHz). If you have a scanner, then tune into the club net on Mondays at 8:00pm and have a listen. Discussions are basically on anything you wish to speak about and everyone gets a chance to have their say regardless of power into the repeater. You may also consider listening to the WIA broadcasts on Sunday mornings at around 10:00 am on 146.850 MHz. The broadcast is also repeated on the same frequency at 7:30 pm on Sunday nights.

Amateurs have set up very polite protocols on repeater operation so using an amateur repeater is a pleasure without the normal interruptions and power games we have on the UHF CB repeaters in Sydney. If you have a shortwave radio, we also have a Wednesday night club net on the 80 metre band (3.608 MHz) at 8:00 pm for those who like to play with HF radio. 80 metres is a challenge and you learn a lot about antennas on the HF bands and it is an amazing band to hear the static and crashes of distant and local electrical storm disturbance.

As well as the HADARC Repeaters, to give you an idea of how many repeaters

an average home base can set up, at present I have 16 x 2 metre repeaters and 12 x 70cm repeaters programmed into my radio. Of these, several repeaters support IRLP (Internet Relay Linking Project) which allows you to literally "dial up" over 1,500 repeaters in over 20 different countries in the world and EchoLink which is a system that links your PC to a repeater regardless of where you are in the world. With EchoLink all you need is an amateur licence, a PC and an internet connection. Foundation power of 10 watts is more than enough to allow global operation through IRLP and EchoLink Repeaters.

Links for IRLP and EchoLink can be found at:

http://www.irlp.net/ for IRLP and

http://www.echolink.org/ for EchoLink.

Amateur radio is global and, because of the combined resources of amateur radio clubs all over the world, becomes an extremely vast radio resource for usage by all licensed amateur radio operators. As the UHF CB band (476.425 – 477.400 MHz) is only available in Australia and because of international protocol on overseas transmissions, UHF CB cannot possibly reach the places and countries that amateur radio can. The introduction of a Foundation Licence is exciting because it finally opens up amateur radio to those who can't quite get their interests around resistors and transistors and just want to chat to the world. It also allows you to have continued access to more technical orientated people and learning becomes much easier when you have hands on experience. This allows Foundation operators to continue to higher classes of licences at their own pace while being able to enjoy amateur radio and what it offers or if technical things don't appeal to you, then the Foundation licence still allows you to chat with amateurs all over the world and of course locally.

Please consider contacting our secretary, she can put you in contact with the man to speak to regarding tutoring and exams. The Foundation exam syllabus has not been completed as yet, but Tony can contact you when examinations commence. In the meantime, you could also try coming up to Mount Colah to our monthly club meetings and see for yourself what our club is all about. Our Secretary can inform you of the next meeting which I believe is next February (fourth Tuesday of each month at 8:00 pm).

We do have some current UHF CB radio operators who are in the process of sitting for their amateur radio licence or have already obtained their licence so you will find HADARC is a friendly club regardless of your interests in radio and there is always great advice to be obtained by the combined knowledge of all persons in the club and of course our affiliation with the WIA.

As the WIA Director mentioned, the WIA promotes amateur radio and represents us as a national body to the ACA and represents us globally as Australian amateurs. The amateur radio fraternity welcomes anyone with an interest in radio and your local amateur radio club is the best place to be introduced to amateur radio. Your local amateur radio club can also provide tutoring and assistance to help you obtain an amateur licence. Non amateurs are also welcome as members of HADARC and as a member, while you cannot utilize the repeaters the club provides, we can assist with tutoring and help you to become an amateur radio operator so you can enjoy the benefits of club membership and the friendship that exists in our club. Getting licensed is not that difficult, it just needs a little bit of time and commitment.

If you require any further information, please email me at any time and I will be happy to answer any questions you may have and I look forward to perhaps seeing you one day at our monthly club meeting. Amateurs are not snobs and we welcome all those who share the same love of radio as we do.

Peter Tolmie VK2ZPT
for and on behalf of The Hornsby & Districts Amateur Radio Club.

The views expressed in the *Over to you* column are those of the authors, and do not necessarily reflect the official policy of the Wireless Institute of Australia.

Better than watching geckoes get flies

My copy of AR just arrived today, and as usual, I have had my first scan reading. Over the next week, I will read it in detail from front to back and then remove items of current or potential interest. I did notice the demise of the DX column, but I have always done my listening by searching around anyway. I have tried this stuff on the Internet, but my machine is so slow, my connection varies in speed and I get frustrated when the thing locks up during a down load. Don't forget - I live in Fitzroy Crossing. For entertainment, we switch on the kitchen light and watch the geckos get moths and little flies. During the wet season, they are joined by frogs that are also out for a feed.

So, what do I get out of the magazine? One of the first things I try is antennae ideas. Over the years I have built long wires, tuners, dipoles, end feeds, quads, trapped verticals, trapped yagis, etc. This month's article on the 160m antenna is great as that is one thing I have been trying to get on to efficiently for years.

I don't get a lot of time for my Ham work and take what time I can grab. If you could put together a series on getting started on satellite radio that would be helpful. What antennas? How do I work out what time of the day? And what frequency? Always FM? What are the protocols? What does all that gobbledygook mean about Kepler elements? How do I interpret the satellite pages? What about a reprint of the band plans so I know what frequency to call on?

So, dear editor, don't give up. There are lots of us who read the magazine and do "stuff" but don't always have the time to tell you what a great job you do.

Keep up the good work and 73 from Fitzroy Crossing

Peter VK6APS

VHF/UHF – an expanding world

David Smith VK3HZ – vk3hz@wia.org.au
Leigh Rainbird VK2KRR – vk2krr@telstra.com

Weak signal

David Smith – VK3HZ

Everything is getting back to normal now following last month's overload. So, I'll try to summarise the happenings over the last few months, if the editor will allow me the space.

The 29/11 was a good time in several areas. Conditions between Melbourne and Adelaide were good, with Charlie VK3FMD managing to work Roger VK5NY on 23 cm. On the east coast, there was an opening from VK2 into ZL. Ross VK2DVZ, Neil VK2EI and Gordon VK2ZAB report working Bob ZL3TY, Brian ZL1AVW, Ray ZL2TAL, Nick ZL1IU and David ZL1BT and ZL1AVZ on 2 m and some of them also on 70 cm.

Then in December, there were a number of Sporadic E openings of note. On the evening of 8/12, David ZL1BT reports working Trevor VK4AFL, Peter VK4APG, Rob VK4ZDX and Bill VK4LC on 2 m. Signals peaked to S9 with a best distance of 2319 km. On the 10/12 Bob ZL3NE/1 in Auckland reports briefly working VK2BHO on 2 m.

Phil VK3YB reports that, just before lunch on Christmas Day, a very intense opening occurred into VK4 pushing his S meter into previously unexplored territory. Stations on the northern end included VK4's CV, ARN, CY, CDI, AML, KK, ZQ and AFL. At the southern end, VK3's AUU and KAQ were also involved. The opening extended into eastern VK5 where VK5's DK and NC also worked the northern stations. That evening, an opening occurred between VK7 and ZL for nearly 2 hours. Mike ZL3MF reports working VK7's ZOO, YBI, BBW, KRR, JG, XQ and YBY. Deon VK7YBI peaked to well over S9. Murray ZL3MH also worked these station plus Norm VK3DUT. Murray was heard by Andrew VK3KAQ on Mt Dandenong, but they did not make a contact.

On the following morning 26/12, Brian VK5UBC reports working VK4's AFL, LC, KSS and DH. Signals peaked to S9, but the opening only lasted for about 10 minutes. That afternoon, another brief opening across to ZL saw VK2's DVZ, EI and ZAB work ZL1's BK, TN and SWW at S9 levels

On New Year's Day, Robbie VK3EK reports working VK4's BLK, KK, AFL and ZAA.

The next morning, Leigh VK2KRR reports hearing the Alice Springs 2 m beacon via a sporadic E opening. The signal was around S7 for about 10 minutes, but no stations could be raised.

On 10/01, another sporadic E opening occurred at about midday between VK4 and VK2/3. Leigh VK2KRR reports working John VK4KK (S9+) and Ray VK4BLK (S7) both at Yeppoon (near Rockhampton). Alan VK2AW also worked into VK4. To the south were VK3HZ, VK3AFW and a number of others. Bryon VK3YFL came home from work when he heard of the opening, and ended up also working John from his car (vertically polarised) on his way back to work. The opening lasted for more than an hour, with very strong signals from the north (S9+20).

On 06/02, a strong high settled on western Victoria, producing good conditions between VK2, 3 and 5. At the western end were VK5's ZK, UBC, ZLX, BJE, RO, JL and BQ. In VK2, contacts were had by VK2's KRR and DO. Also involved were VK3's KEG, AXH, HZ, II, FMD, AUU, UH, AMZ and AFW. Several Melbourne stations worked Les VK5JL at Grange, a beachside suburb of Adelaide. This is difficult to achieve because of the Mt Lofty ranges, immediately to the west of Adelaide. Unusually, the opening lasted until after midday before dying out.

In summary, so far this summer we've had high Sporadic E activity, but good tropo conditions have been limited. Only one tropo opening has occurred between VK3 and VK6, and VK2/4 to ZL tropo openings have also been very limited. Let's hope that the remainder of summer brings better conditions.

In early January, Ron VK3AFW spent some time at the summit of Mt Buller with his portable station, consisting of an IC706MkIIG with 5 el beams for 2 m and 70 cm. His best contacts were, on 2m VK4ABW near Townsville - 1988 km - and Brian VK5UBC/P York Peninsula - 886 km – and on 70 cm Peter VK5ZLX - 730 km. He also worked into Adelaide proper, to Les VK5JL on 2 m.

VK/ZL attempts on 2.4 GHz

Steve ZL1TPH reports on attempts to work across the Tasman on 2.4 GHz. On Friday 14/1, Steve worked Ross VK2DVZ on 144, 432 and 1296 (2100 km) from his portable site at Muriwai. Numerous attempts were made on 2.4 GHz throughout the afternoon to Ross, but no contact was made. Nick ZL1IU also made attempts to Ross at the same time. In the evening Brian ZL1AVZ also from Muriwai and Nick made attempts on 2.4 GHz to Ross VK2DVZ and also Adrian VK2FZ in Sydney. Although no contacts were made it was an encouraging start and will hopefully inspire others to participate. Stations involved -- ZL1AVZ ZL1IU ZL1TPH VK2DVZ VK2FZ - till the next opening.

People

Gordon VK2ZAB has had a major family crisis and, as a consequence, has closed down his station and is in the process of selling off all of his equipment. This is a substantial loss to the VHF/UHF weak signal community, of which Gordon has been a key member for a very long period. We wish Gordon well for the future and hope that everything turns out for the best.

Guy VK2KU has had some misfortune at his new QTH and will probably be off air for several weeks. On 01/02, a prolonged and severe electrical storm caused fairly extensive damage to his shack equipment. Initial checks showed lots of blown fuses, a dead radio, a HV supply which trips the circuit breaker when turned on, and both az and el rotator controls out. Some of it may be just blown fuses, but certainly not all!

Roger VK5NY reports that he has a new VK2 QTH at Bowraville in a deep valley, but under the northbound aircraft

flight path from Sydney to Brisbane so there is hope at QTH No 2 for some VHF contacts. In time he will have a rig set up there on VHF. His present location at Mount Wilson will continue to be his home base with breaks to VK2.

Gippstech 2005

As you may see elsewhere in the magazine, Peter VK3KAI is calling for papers for this year's Gippstech conference. This is a not-to-be-missed event for anyone interested in weak signal VHF/UHF/Microwave operation. It's also a good opportunity to catch up with people with a common interest. Mark it in your diary now – the weekend of the 9th and 10th of July.

Summer VHF/UHF Field Day

The Summer VHF/UHF Field Day on 15th and 16th January saw a good turnout of portable stations in VK3, despite the initially inclement weather. Of the stations worked from my QTH in Melbourne, 15 were Field Day stations - perhaps the most memorable being David VK3KAB and Alan VK3XPD in the Cranbourne Tip! There were a number of field stations out in the Geelong district too, and a number of locals from that area popping up to work them. I understand that quite a few stations were out in VK5 also. However, the other states were very quiet.

As of 02/02, John VK3KWA had received Summer VHF/UHF Field Day logs from VK2AES, VK3's EK HZ JS UH ATL AWT CAT KAI TRD YDK YFL, VK4's EV DFG and VK5's AR DC FD MX OQ ADE AIM.

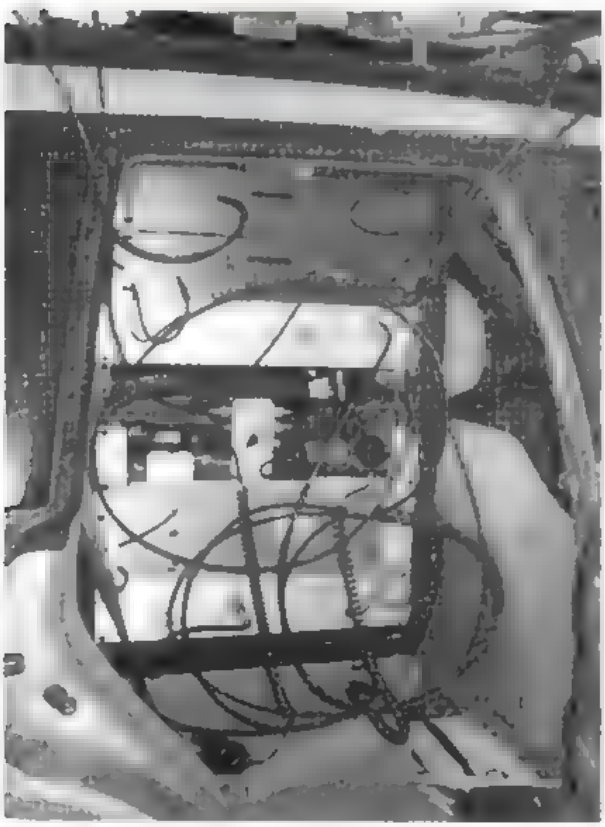
Peter VK3KAI was out on Saturday afternoon in his rover setup, working from a number of gridsquares on all bands from 50 MHz to 10 GHz. What's more, Peter is able to operate mobile on all of those bands. The photograph of his setup shows all of the antennae sprouting from the roof of his vehicle, consisting of: 6 m – 144 MHz 5/8 whip, 2 m - Big Wheel, 70 cm - 2 x stacked Big Wheels, 23 cm - Alford slot, and 2.4 GHz to 10 GHz - VK5ZO slotted waveguide antennae. Inside the vehicle, a 19-inch rack holds all of the equipment, consisting of an IC706IIG for 6 m, 2 m & 70 cm, an FT-817 as an IF driver, and transverters for 1.2 to 10 GHz. Nearly all of the transverters and antennae are homebrew. The system is being constantly improved, so we can expect to hear more big signals from Peter on future Field Days.

Microwave

Russell VK3ZQB reports that conditions suitable for microwave contacts have been fickle this season, probably worse than last season. They have had a few sessions with poor results but it has shown up some problems with the equipment. So it has been full-on at the workbench repairing gear in case the band opens.

On the evening of 24/1, Russell worked Col VK5DK and Trev VK5NC on 10 GHz from Port Fairy to Mt Gambier. Signal reports were 5-9+ and at times it was possible to hear Colin with the dish pointing 180 degrees off the path. They tried 24 GHz but had no success at all. They will have to check the 24 GHz gear and perhaps try and make contact over a shorter path to prove the gear. With the lack of good tropo openings they are getting a nervous twitch and will jump at anything that looks like a tropo opening.

Charlie VK3FMD, Alan VK3XPD, Chas VK3PY, David VK3XLD and Bill VK3AMH have also been involved in



Rover rack

Rover front

microwave hilltopping in recent times. While contacts on 10 GHz seem to be readily achieved, 24 GHz is proving much more of a challenge. One of the reasons is that attenuation due to moisture in the air is substantial at the higher frequency. The two bands are quite different in characteristics.

On the other side of the world, it seems that Brian WA1ZMS, just can't get enough Gigahertz. He reports that on 21/12, WA1ZMS/4 worked Pete W4WWQ/4 on 403 GHz CW for a new distance record of 1.4 km. Signals were very weak on the W4WWQ end, while several dB of margin existed on the WA1ZMS end. The QSO exceeded the stations' former "best DX" on 403 GHz of 0.5 km. It also conquers the 1 km barrier for amateur frequencies above 400 GHz - except for visible light.

Beacons

Terry VK3ATS in Mildura reports that the Broken Hill VK2RBH 70 cm beacon is off the air at the moment due to equipment problems/failure.

The VK2RSY beacons at Dural are finally getting some much-needed attention. The 23 cm beacon on 1296.420 MHz has its horizontal slot antenna higher up the tower. The other beacons currently online are those on 10 m and 70 cm. The 2 m beacon still requires a rebuild.

Colin VK5DK reports that the new VK5RSE 432.550 MHz & 1296.550 MHz beacons are now on air from Mt Graham, 40km NW of Mt Gambier. The old 70 cm beacon had repeatedly failed and was finally replaced. Frequency stability should be very much improved. Both beacons are driven by a common keyer. The 23 cm beacon uses 2 x 10 element yagis pointing east and west at the top of a 30 m tower, and power is approx 25 watts. The 70 cm beacon uses 2 x 8 element yagis east and west at the 15 m mark on the tower. Thanks to Russell VK3ZQB for the construction of the new beacons plus DTMF tone access so the beacons can be remotely switched on & off if necessary. The 23 cm beacon is being regularly heard in Melbourne. Any reports on these new beacons are most welcome to Colin at vk5dk@internode.on.net.

Towards the upper end of the spectrum, the VK3RWL Mt Warrnambool 10GHz beacon is being heard around Victoria and eastern SA. It is currently a little low in frequency on approximately 10368.430 MHz. The VK5VF 10 GHz beacon is currently off-air until further notice while some site issues are being dealt with. Wal VK6KZ reports that the VK6RST Albany 10 GHz beacon is alive and well, but several kHz higher than its nominal 10368.564 MHz. With the dish directed at VK5/3, it's hoped that one day the beacon may be heard across the Bight.

Finally, a reminder about the VK/ZL Logger Beacon Status page - http://vklogger.brizwebz.com.au/. Please don't forget to update the beacon information on that page if you become aware of any change.

6 m activity reports

Readers may have noticed a lack of reports on 6 m activity in this column. None of the current contributors isseriously active on this band, and so we hear very little news of 6 m happenings. To remedy this, I'm asking for a volunteer to contribute notes each month regarding 6 m. You don't have to have a degree in journalism or anything like that. It simply requires someone active on 6 m who is across the various sources of news and who can collate / summarise these into a short section for this column. Please help out and at the same time, foster more interest in your band. If you are interested, please contact me (VK3HZ) at the email address below.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.

Digital modes

Rex Moncur – VK7MO

Joe Taylor, K1JT, has released version 4.9.2 of WSJT, which provides for some 4 dB of improved sensitivity for JT65. It uses the existing transmission scheme and is thus compatible with older versions. The program achieves this improvement by using what Joe calls a "deep decoder" that digs further down into the noise. The "deep decoder" works by comparing a series of possible messages with the output of the receiver and working out a correlation factor. If it finds good correlation it prints out the message. The expected message can be from any of 4200 stations in the program's database who might be calling CQ, calling you, or sending you a report. It is also possible to put the program into sked mode where it looks only for the call sign of a station with whom you are in sked. One might feel this is pushing the boundaries too far as if you try long enough it is certainly possible to find a period of noise that corresponds to any given weak signal message. Of course every mode we use is subject to some error rate that we might hear an expected signal in the noise - the real question is whether the error rate is acceptable. To determine the error rate I conducted a test where the program was set up in sked mode to work a particular station at a marginal signal level. I then changed the message by just one letter in the call sign and in 6 hours of testing it did not once incorrectly give a decode of the expected sked message. In fact the error rate is less than 1 in 100,000 and thus the new decoder is extremely robust.

Welcome to Mark, VK2EME, who has joined the weekend activity meteor scatter activity sessions on FSK441 and has also been testing JT65. The activity sessions are held each Saturday and Sunday morning on 144.230 from 0700 to 0800 local Vic/NSW time. Southerly stations, VK3/5/7, transmit in the first 30 seconds of each minute and Northerly stations, VK1/2/4, in the second 30 seconds. FSK441A is used on Saturday and FSK441B on Sunday. After the sessions we have a callback on 7085 or nearby to share experiences. Newcomers are welcome and even if you are not yet operational on the digital modes please call in on 7085 and someone will be ready to help with your questions.

Please send any Digital Modes reports to Rex VK7MO at rmoncur@bigpond.net.au.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

For most of January, weather conditions were very fast moving and unstable, and thus tropospheric conditions were very poor for most of Australia.

A very interesting and (in Australia) rare 146 MHz Sporadic E opening occurred on the 10th of January. Just after 10 am, John VK4FNQ from Charters Towers, north Queensland made it into the Canberra 146.950 repeater on Mt Ginini. Lucky stations at the Canberra end were Rob VK1ZQR and Leigh VK2KRR who had the pleasure of speaking to John, who was coming into the repeater over a 1735 km path, virtually noise free.

Also making it into the Canberra repeater at the same time as VK4FNQ was Felix VK4FUQ at Ingham, north Queensland. Felix did not quite have as good a signal as John did but was still in there, albeit briefly, over his 1893 km path via Sporadic E to the repeater.

It was quite amazing to hear these guys from north Queensland coming into the Canberra repeater via Sporadic E like they were locals.

John VK4FNQ also managed to get a few words into the Wagga repeater 146.750, but the path just wasn't there for him at that time.

On the 24th of January, conditions were very good around the south coast of VK3 and into VK7. Charles VK5XCP in Mt Gambier worked across to Gippsland to make contact with Peter VK3NPI (490 km). Charles had a full-scale signal on 2 m and a 5/9 on 70 cm simplex from Peter. Karl VK7HDX made it to the Otway Ranges repeater VK3ROW.

On the 30th of January, Brian VK5UBC at Corny Point was able to make it to the Mt Macedon repeater VK3RMM and contact John VK3HJW. This was 725 km for Brian.

Mike VK4MIK advises that it's been very quiet along the VK4 coast. But on the 31st he was able to make the 451 km distance to the Hayman Island repeater where he worked David VK4DJC. Mike also worked Mark VK4KMR via Hodgson Range, VK4RHR.

Please remember to send through any 2 & 70 FM DX reports to Leigh VK2KRR at vk2krr@bigpond.com.

Microwave UpDate (MUD) 2005 call for papers

MUD 2005 will be held this year in the Los Angeles area on October 27 to 31.

As the Technical Program Chairman this year, I would like to invite interested authors to present a paper(s) for the 2005 conference.

Microwave Update is the premiere microwave amateur radio conference on the planet. Many people around the world collect the proceedings from this conference since it represents the current state of the art in microwave amateur radio. This is a great opportunity to get your ideas and papers published! You don't have to give a talk to get your paper included in the proceedings.

Electronic submissions in Word, WordPerfect or text format accepted by email or CD. Usual drawing formats also accepted with your paper(s).

Cutoff date for inclusion in the proceedings is September 5th, 2005.

If you are interested in writing and/or presenting a paper for the 2005 Conference, please send me an email or write to:

N6CA
PO Box 35
Lomita CA 90717-0035
email: n6ca@ham-radio.com

Please contact me as soon as possible with an abstract or even a general idea. This will help the conference team with its planning activities.

For more information about the Microwave UpDate 2005 see:

http://www.microwaveupdate.org

73 Chip N6CA

Gippstech 2005 *Announcement*

The WIA Eastern Zone Amateur Radio Club (Inc) is pleased to announce GippsTech2005.

This year the event will be held on Saturday July 9 and Sunday July 10. This event has a well-recognised reputation as the premier technical conference in VK considering techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. In addition to the Conference, a Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

CALL FOR PAPERS

Amateurs (& others with material to contribute) are invited to submit titles and outlines for topics to be presented at GippsTech2004. Presentation slots can be brief (5 -10 minutes) through to 1 hour. Anything longer - you will need to justify!!

Presentations can be formal or informal, or display. We use a lecture theatre for the formal (& semi-formal) presentations. Displays are open during coffee/tea breaks and after lunch. Potential presenters are welcome to contact me direct for further information or to suggest a topic.

The conference is held in Churchill about 170km east of Melbourne.

Further details can be found at the Eastern Zone Amateur Radio Club web site at:

http://www.qsl.net/vk3bez/

Peter VK3KAI
Chair, Organising Committee
vk3kai@qsl.net

HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

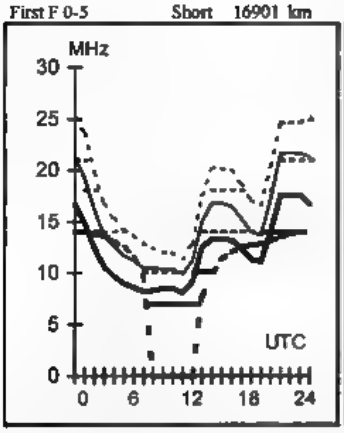
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program ASAPS Version 4

March 2005
T Index: 30

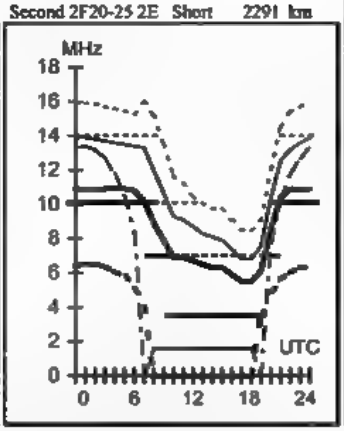
Legend

Frequency scale
UD
E-MUF
OWF
F-MUF
ALF
>10%
>50%
>90%
Time Scale

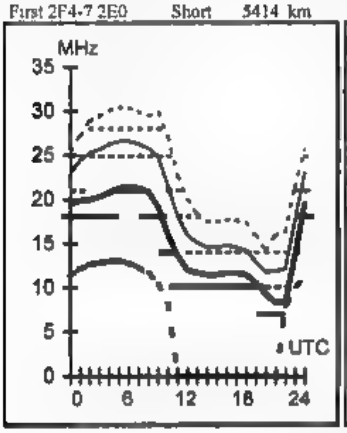
Adelaide-Ottawa 68
First F 0-5 Short 16901 km



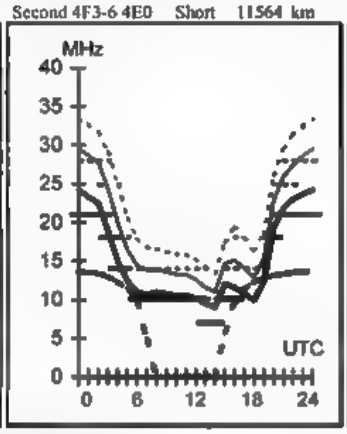
Brisbane-Auckland 123
Second 2F20-25 2E Short 2291 km



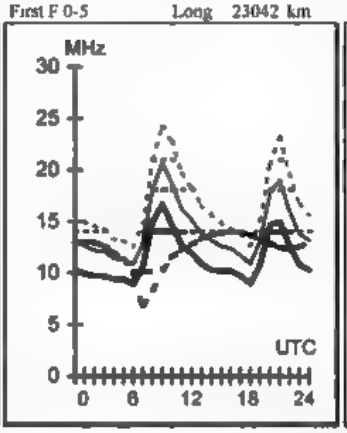
Adelaide-Singapore 311
First 2F4-7 2E0 Short 5414 km



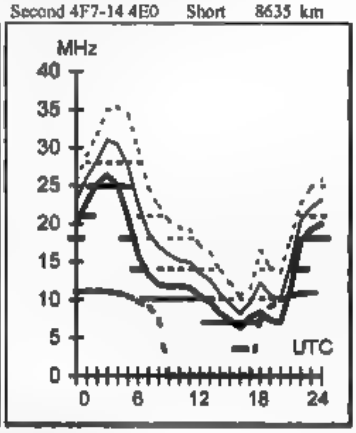
Brisbane-Los Angeles 59
Second 4F3-6 4E0 Short 11564 km



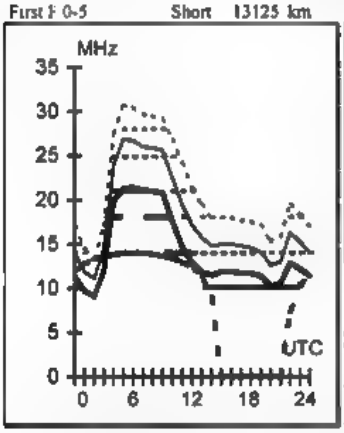
Canberra-London 136
First F 0-5 Long 23042 km



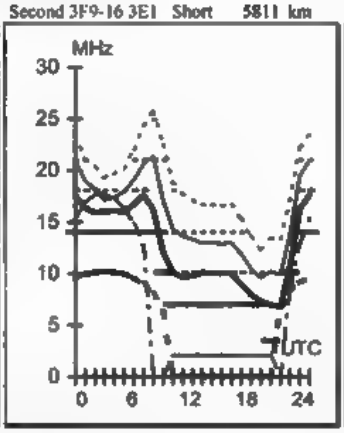
Darwin-Honolulu 65
Second 4F7-14 4E0 Short 8635 km



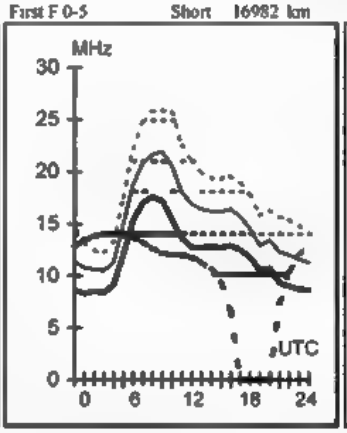
Adelaide-Tel Aviv 291
First F 0-5 Short 13125 km



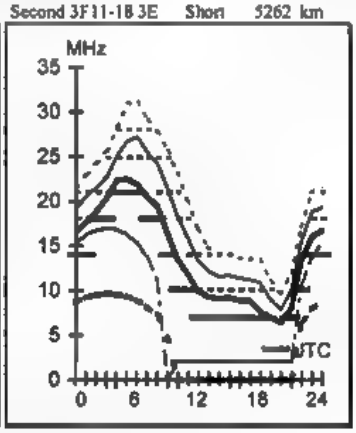
Brisbane-Manila 320
Second 3F9-16 3E1 Short 5811 km



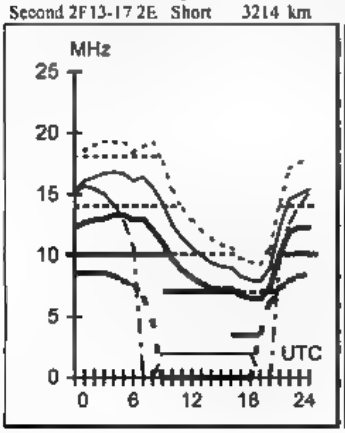
Canberra-London 316
First F 0-5 Short 16982 km



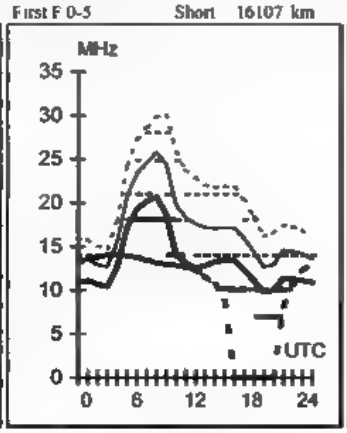
Darwin-Osaka 6
Second 3F11-18 3E Short 5262 km



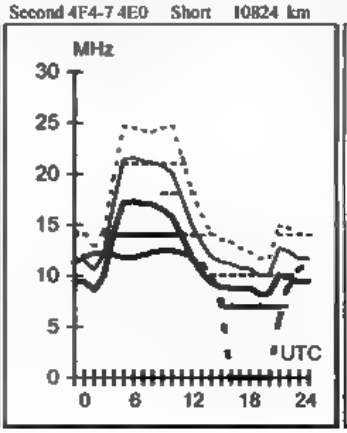
Adelaide-Wellington 114
Second 2F13-17 2E Short 3214 km



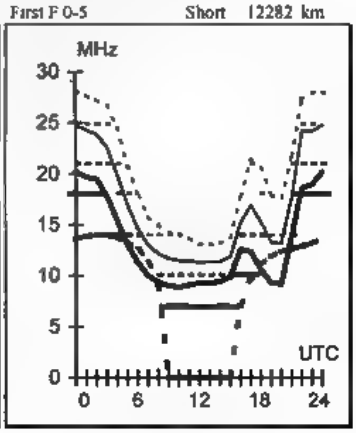
Brisbane-Rome 306
First F 0-5 Short 16107 km



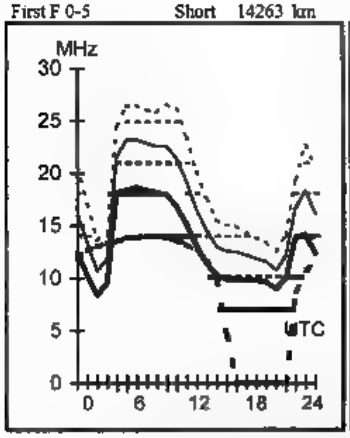
Canberra-Pretoria 231
Second 4F4-7 4E0 Short 10824 km



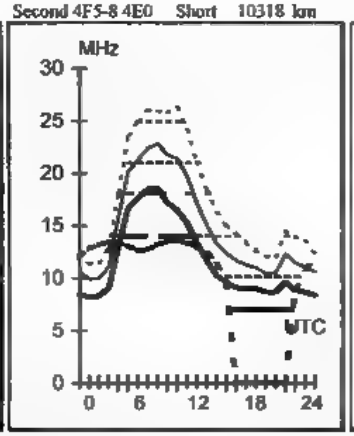
Darwin-Seattle 44
First F 0-5 Short 12282 km



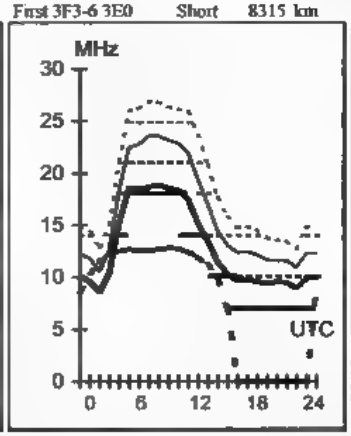
Hobart-Cairo 278
First F 0-5 Short 14263 km



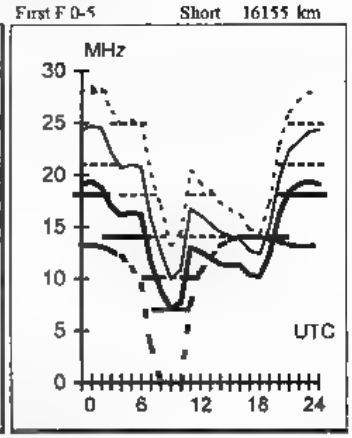
Melbourne-Capetown 222
Second 4F5-8 4E0 Short 10318 km



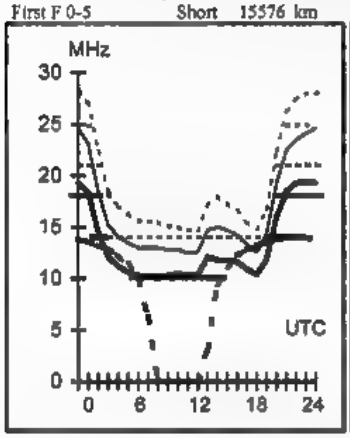
Perth-Johannesburg 248
First 3F3-6 3E0 Short 8315 km



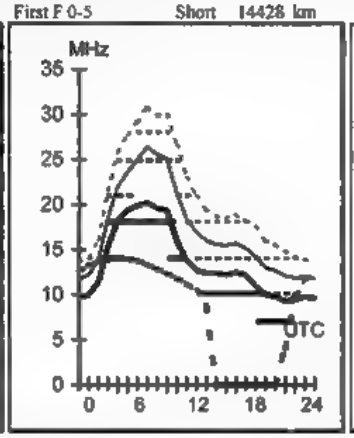
Sydney-Barbados 119
First F 0-5 Short 16155 km



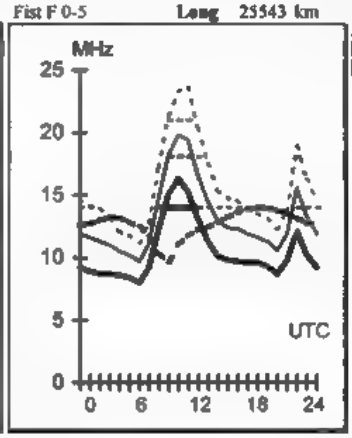
Hobart-Chicago 72
First F 0-5 Short 15576 km



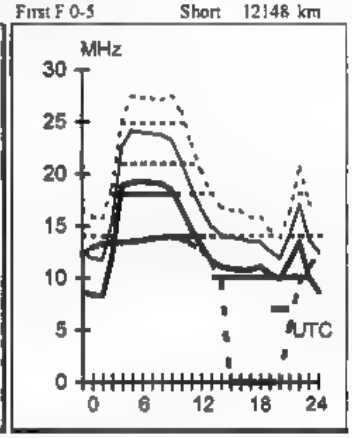
Melbourne-Moscow 316
First F 0-5 Short 14428 km



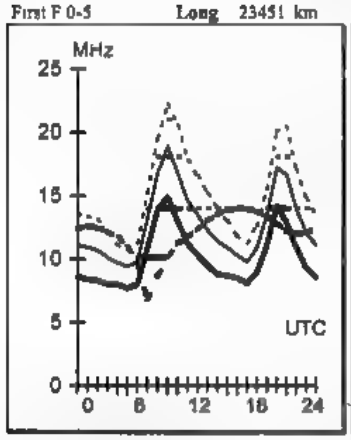
Perth-London 133
First F 0-5 Long 25543 km



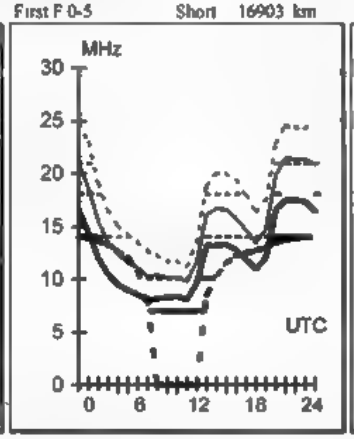
Sydney-Nairobi 255
First F 0-5 Short 12148 km



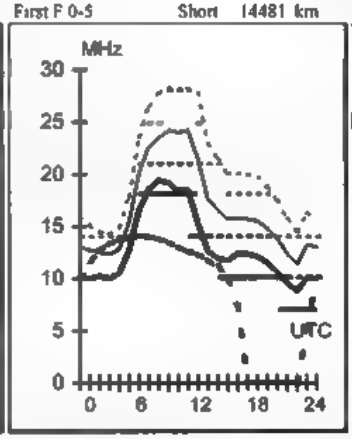
Hobart-Oso 138
First F 0-5 Long 23451 km



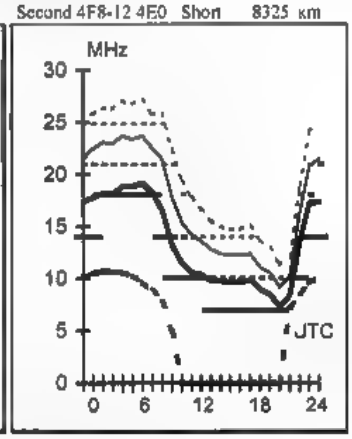
Melbourne-Montreal 60
First F 0-5 Short 16903 km



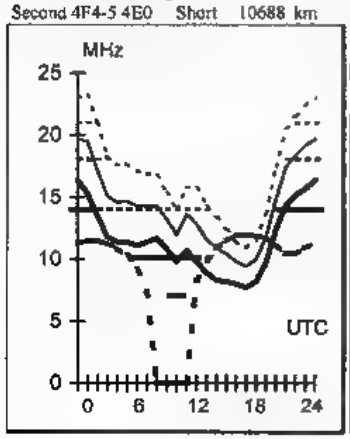
Perth-London 313
First F 0-5 Short 14481 km



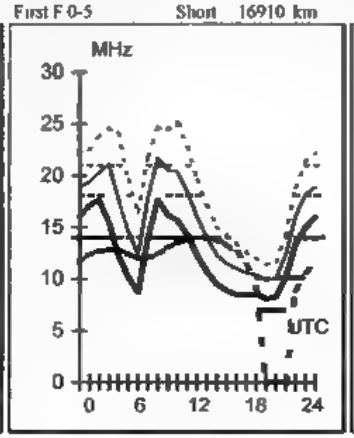
Sydney-Seoul 340
Second 4F8-12 4E0 Short 8325 km



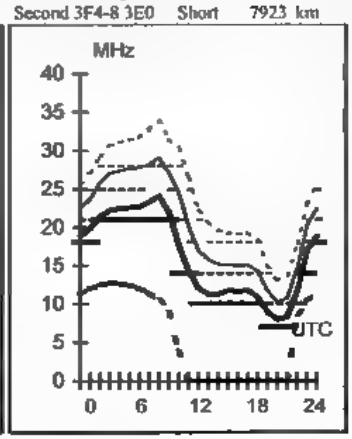
Hobart-Santiago 149
Second 4F4-5 4E0 Short 10688 km



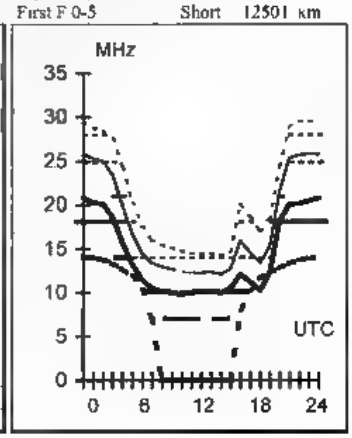
Melbourne-Senegal 219
First F 0-5 Short 16910 km



Perth-Tokyo 20
Second 3F4-8 3E0 Short 7923 km



Sydney-Vancouver 45
First F 0-5 Short 12501 km



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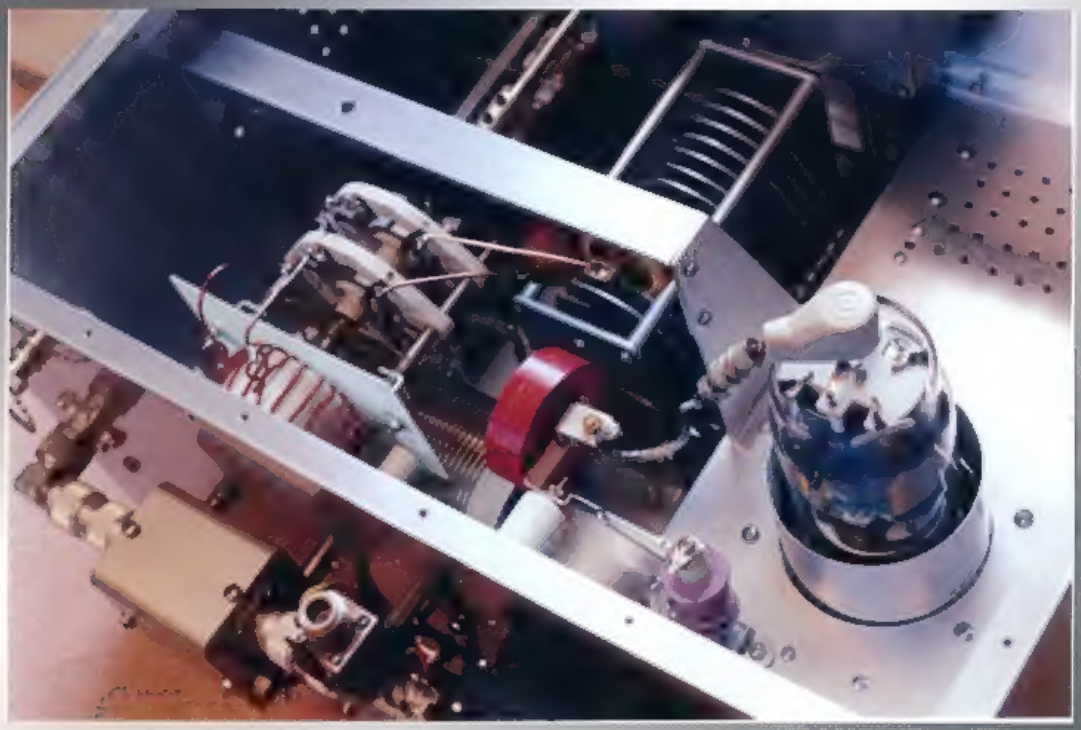

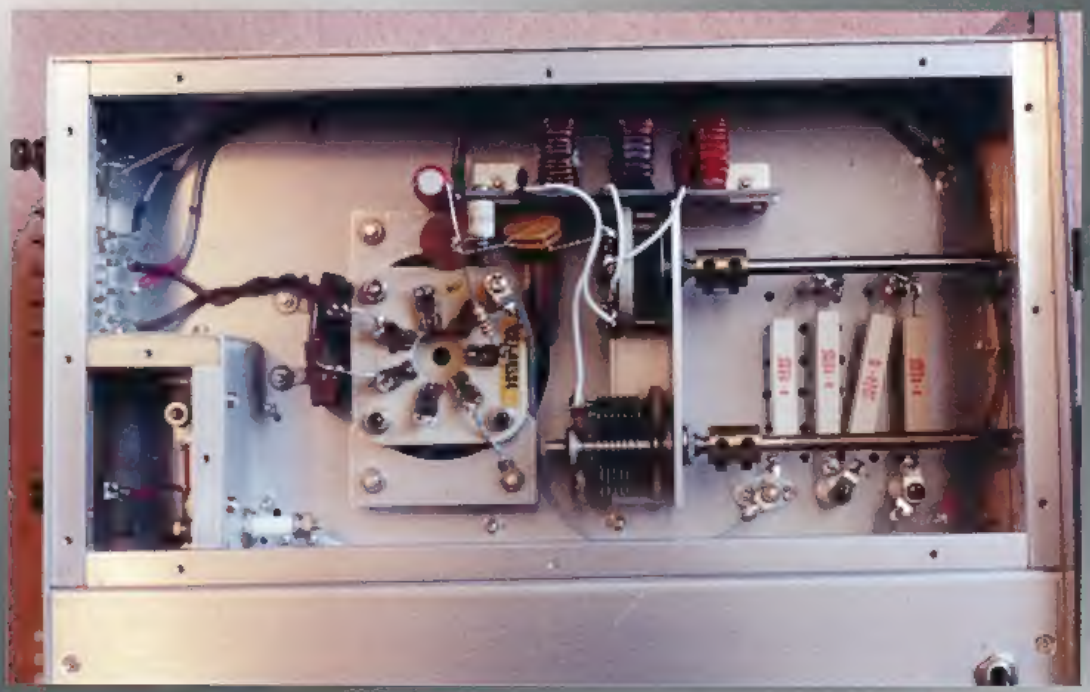

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